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## HISTORY OF THE MICROSCOPE.

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THE microscope is daily being more and more pressed into the service of the scientist, to enable him to elucidate the problems met with in everyday life, and the veterinarian has not been behind in accepting to the full the great advantages accruing from the use of this wonderful and exceedingly useful instrument. The diseased condition of animals which up to comparatively recent times were mysteries and treated as such, are now, comparatively speaking, an open book to us, thanks to the untiring energy and industry of the microscopist. Diseases which, in the days of our forefathers, were put down to "humours" and other occult and mythical things, we now know to be due to vital processes brought about by specific and non-specific causes; it is within recent years that those scourges of the animal kingdom, viz., contagious diseases, have been proved to be due to specific causes. If the dead and gone pathologist of say fifty years ago could only re-visit this earth, he would indeed be greatly surprised at the rapid and almost incredible stride his particular science has made, and much, nay, we may almost say most, of the advance of pathological and allied science has been due to improvement in the mechanical and optical parts of the microscope; certainly no other instrument can be said to have done so much to forward the healing art.

Surprising though the progress of the last fifty years has been, what may it not be in the next half-century? We now know that animals are preyed upon by microscopic plants and animals, shall we next be told that these in their turn

are infested by parasites? Who can tell? Perhaps the well-known couplet that:—

> "Big fleas have little fleas upon their back to bite 'em,
> And little fleas have lesser fleas and so *ad infinitum*,"

will ultimately be found true to the letter. Anyhow, we have no reason to be otherwise than satisfied with the progress achieved hitherto, and without doubt the future, through the medium of the microscope, has equally great wonders to unfold. The microscope at its birth was not put to any serious uses, but was merely a toy, and contributed to the amusement of the *dilettanti*, who little dreamed that the insignificant plaything would in the course of time place humanity under such a debt as it has.

The early history of Optics is very obscure and uncertain, for though we are told that the Egyptians, Chaldeans, and Chinese were keen astronomers, we do not know, with certainty, that they employed instruments at all like telescopes; indeed, records point to the fact that they were ignorant of the most elementary laws of optics, for though they used burning glasses, they probably did so without knowing much of the theory of their action. Aristophanes, in 431 B.C., mentions burning glasses, and we read of the Roman fleet in 250 B.C., being set fire to at Syracuse, by the sun's rays, concentrated by means of specula of polished metal.

The British Museum authorities have in their possession a very interesting piece of rock-crystal, known as the "Assyrian lens," which is plano-convex, oval in shape, and appears to have been ground, and at least partially polished. It is on the authority of Sir James Brewster that it is called a "lens." The approximate date of its manufacture has been fixed at between 721 and 705 B.C., but whether it was used for magnifying purposes or not, is open to question.

About 50 A.D., Seneca discovered that hollow glass spheres filled with water had a magnifying power. Ptolemy, about 140 A.D., seems to have been the first to seriously study the laws of light.

After the discovery of the magnifying power of globes of water, little seems to have been done until the 11th century, when the subject was apparently revived. The name of Friar Roger Bacon, is connected with the invention of spectacles in the 13th century, and this is probably the first serious use to which magnifying glasses were put; and it is to a spectacle-maker of Holland that the name of the "Father of the microscope," is applied.

The first simple microscope consisted of a cylindrical box having a lens fixed to the top, and two pieces of glass at the bottom, between which the object to be viewed was fixed. This microscope derived its name "vitrum pulicorium," from the object usually being a flea, which, no doubt, was considered to be a very wonderful and highly interesting sight.

Leeuwenhock, the illustrious microscopist and originator of bacteriology, constructed an instrument in which the lens was fixed in a metal plate, and underneath was a needle on the point of which the object to be examined was impaled; the needle could be raised or lowered at will by means of a screw.

Hooke, in 1665, seems to have been the first to use lenses of cast glass; up to his time cut lenses were the only kind employed.

Wilson, about 1740, considerably improved the simple microscope by mounting it on a foot and supplying it with a hinged mirror; this being further improved by Cuff, in 1750, who, making the stage moveable, gave us the type of the present day simple microscope.

The compound microscope was invented by Zaccharias Janssen, a spectacle maker and optician, living in Middleburg, Holland. Most have heard the story of how one day he happened to hold two spectacle lenses one above the other and found that the magnification was greater than when only one lens was used. He immediately set about making an instrument consisting of four tubes sliding within each other, two of which carried lenses. It was necessary to hold this instrument up to the light, as no mirror was used. The above discovery has been claimed for the Italian Galileo, but though he certainly made a microscope, it is proved that it was not in any way like Janssen's.

It is interesting to note that some of the early compound microscopes were made of such large dimensions that the tube is said to have been as thick as a man's leg, and the eye-piece the size of the palm of the hand.

Hooke made a compound microscope about 1665 which was mounted on a foot and had the tube inclinable, but the object could only be examined by light thrown upon it from above. The light was concentrated by interposing a glass globe between the object and a lamp; this seems to have been the first attempt at making a condenser. A true condenser was used by Réve Bouanni about 1691, and, in fact, his instrument was the germ from which the modern micro-

scope has sprung; it was horizontal, and had both rapid and slow movements.

An inclinable microscope was made by John Marshall, of London, in 1704, in which six objectives could be used, magnifying from 4 to 100 diameters.

In 1744, Cuff made the stage free, and so that a diaphragm could be fitted underneath. Martin made his Large Universal Microscope about 1780.

Up to the present century progress had been slow and spasmodic, but after the introduction of achromatism, in 1824 or 1830, a change took place, and rapid progress was made: in fact, the history of the microscope may be divided into ancient and modern—ancient before 1830, modern after that date.

The names of Van Deyl, Vincent, Chevalier, and Amici are found associated with mechanical and optical improvements in recent years.

The binocular or stereoscopic microscope was warmly advocated by Carpenter, and not without good reason, for by it was demonstrated "the value of the conjoint use of both eyes in conveying to the mind a notion of the solid form of objects, such as the use of either eye singly does not generate with like certainty or effectiveness."

The introduction of "Immersion" systems we may consider the latest great advance made. Amici long ago pointed out the fact that a drop of water introduced between the cover glass and the front of the objective diminished the loss of light resulting from the passage of the rays from the object into air, and then from air into the object glass; and recently Abbe (among others), has replaced the drop of water by one of cedar oil, which he found to have nearly the same refractive and dispersive power as crown glass. Still more recently, Zeirs, of Jena, has introduced a more perfect immersion lens, but as its price is £40 it is not likely to come into general use.

When the necessity arose for making a permanent record of the image seen through the microscope, numerous instruments were made to facilitate drawing. There are in present use various forms of camera lucida, but none are without some drawback. Mr. Forgan, of this city, has made an instrument which projects the image on to the drawing-paper, and so drawing is made easy, but this little accessory can only be used with comparatively low power.

Photography has been pressed into the service of the microscopist, and is now in very general use, in fact, one now sees very few papers in the scientific journals, which are not

illustrated by photo-micographs. Should photography of colours ever become an established fact, no science or art will derive more benefit from it than microscopy.

Such, then, is a very imperfect account of the history of a universally employed instrument. We have seen from whence it came, and what it has become; what it will be, no one can tell, and I cannot end better than by quoting Professor Abbe's words:—"I believe that those instruments, which may, perhaps, in the future, more effectively aid our senses in the investigation of the ultimate elements of the material world than the microscope of the present, will have little else than the name in common with it."

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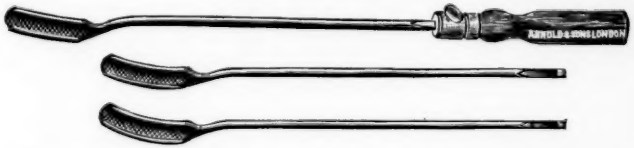
## SINGLE MOLAR TOOTH RASPS.

BY VETERINARY-MAJOR I. MATTHEWS, F.R.C.V.S., F.R.G.S., ARMY REMOUNT STAFF, DUBLIN.

THE great amount of care now devoted to minor everyday operations in Equine Dental Surgery has produced a variety




of rasps calculated for use on single molars, as opposed to the "old time" system of wholesale reduction by six and eight-inch rasps. Those I now wish to place before the profession have been constructed with considerable care by Messrs. Arnold & Sons, whom I have to thank for the minute attention they have bestowed on their construction, and they are the ones I recommend to be used in my Paper on Dentistry in the 4th edition of Sir F. Fitzwygram's "Horses and Stables."

Their advantages may be enumerated as follows:—

1st. The lightness of the "business," or operating end, readily allows of their use with one hand.

2nd. Their "lateral guards" offer sufficient guarantee against injury to the buccal membrane, and assist to retain the rasp surface on the tooth operated on, difficulties I have more than once encountered in operating with somewhat similar rasps without them.

3rd. The three rasp heads vary in their curves, in view of more ready adjustment to varying conditions of abnormal growth.

4th. The fact of the shafts fastening into the handle by a screw does away with the risk of a short head-piece becoming detached in the mouth, and possibly swallowed during the operation, which is liable to happen with the latter when the thread of the screw joint becomes loose from wear.

The past ten or twelve years have witnessed a marvellous advance in knowledge of equine dental development, with its accompanying ailments, and many practitioners possess sufficient dexterity to manipulate and operate on the molars, even to the 5th or 6th, without balling-iron or other restraint, though few, I think, will dispute their need for complicated cases; as we all know keeping the horse's jaws from closing during manipulation is a matter of skill, the result of practice combined, as it always must be, with unfailing patience. Few branches of our profession are more interesting than Dentistry, and none offer so sure a prospect of substantial pecuniary reward as does this one to the specialist, who establishes himself at one or other of our great racing centres.

It would be idle, in addressing professional men, to dwell on the vast advantage of the modern system of individual treatment of molars, compared with the collective practice of the past.

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## THE ACUTE EPIZOOTIC AND EPIDEMIC OUTBREAK OF HYDROPHOBIA AT MADEIRA.

BY DR. JULIUS GOLDSCHMIDT, MADEIRA.

THE successive occurrence, both epizootic and epidemic, of hydrophobia in a country where it had been hitherto unknown, causes the history of recent occurrences at Madeira to be of great interest to the epidemiologist.

The number of dogs in Madeira has always been large. There is no official statement on the point, but I may be entitled, having been a resident physician on the island for over twenty-seven years, and having therefore become extremely familiar with the place and its inhabitants, to make an estimate. In doing so, I am sure that I remain below the truth in putting the figure at one dog to two households (*fogos*) each of six individuals—*i.e.*, practically 11,000 dogs to 130,000 persons. The figures are less surprising if it is remembered that similar statistics for Europe indicate on an average one dog to sixteen inhabitants. There is only one town in Madeira—viz., the capital, Funchal, with 30,000 inhabitants; the rest of the population

lives either in small hamlets, which rarely deserve the name of villages; or in isolated huts, built on the small plots of ground belonging to them. Thus it happens that the solitary peasant remains, notwithstanding his poverty, in continual fear of thieves, and always keeps a dog for his protection. These dogs find their miserable food as well as they can; few of them are regularly and abundantly fed. Their race can only be described as constituting an unjustifiable type of mongrel; but in spite of all these adverse conditions, in spite of utter neglect, racial degeneration, and overcrowding, hydrophobia remained unknown in Madeira until less than two years ago.

At the beginning of June, 1892, rumours were rife in Funchal relating to "a new dog's disease." The animals died in a few days under symptoms which suggested at once the idea of hydrophobia. At the outset the competent authorities did not admit this diagnosis, and the condition was only many weeks later recognised as rabies, a diagnosis which was then confirmed by inoculations. The symptoms were briefly as follows. Animals known as quiet began to snap at all around—even at their own masters. After a short period (two or four days) of excitement paralysis set in, which terminated in the death of the dog. At the end of June reports came in from all parts of the island telling the same story, and describing the disease as spreading not alone amongst dogs but also amongst goats and cats. This rapidity of spread is noticeable, for in Madeira communication between the different parishes is precarious on account of difficult roads and numerous deep ravines; but, notwithstanding these topographical difficulties, the epizootic outbreak traversed the island in a marvellously rapid manner, showing itself at almost the same time in the town and in the most distant parts. The dogs underwent an incubation period of from twenty-five to thirty days; the illness lasted for from four to five days. During the first and most acute period of the outbreak 300 dogs perished on the southern half of the island, and over 1,000 were killed on the appearance of suspicious symptoms. One case of undoubted hydrophobia recovered gradually, and the great rarity of this fortunate issue entitles the case to more particular mention. The animal, a bitch three years old and sterile, began to be sad and refuse food on August 15th, 1892. Paralysis of the nether paw set in on the following day. From the 17th she kept up a continual hoarse barking. Five days later she displayed complete general paralysis, with the exception of the tail, which

she would wag at the sight of her master. She had considerable difficulty in masticating and swallowed only with great efforts the broth which her master, wearing gloves of thick leather, poured down her throat. The paralysis of the jaw lasted for one month, and during the whole of this time the dog was fed with chicken broth and minced meat. The paralysis then disappeared, and with the remission of symptoms came an amelioration in the state of the tongue. The general paralysis came to a practical end in four months, but even six months after the beginning of the disease there still remained a stiffness in the movements of the neck and the right shoulder.

By December, 1892, the outbreak came to an end. Thus the epizootic had lasted for about six months, the last two months having yielded, however, only a small number of cases. Other animals suffered comparatively little. In Funchal and its environs I only met with six cases amongst cats, four amongst hogs, and six amongst goats. Amongst cattle two cases were said to have appeared, but I cannot guarantee this rumour. With regard to the outbreak of a human epidemic, it is regrettable that the population of the island suffered in a very marked degree. Nine fatal cases were reported amongst the 60,000 inhabitants of the southern parishes of Funchal, Santa Cruz, and Manchico—a formidable death-rate, which, applied to the population of the United Kingdom, would have resulted in 5,000 victims. The last death from hydrophobia occurred in November, 1892. The local papers, it is true, announced another case on September 14th, 1893, in one of the southern parishes, but I could not ascertain whether the patient, a child nine years old, which was bitten nine months before his death, had really died from hydrophobia.

With regard to the origin of the calamity, it appears to be certain that the epizootic was not auto-chthonous, but was imported into the island by some continental animal which had escaped the usually over-strict supervision of the Funchal Custom House officials. Subsequent researches revealed the landing of a Lisbon dog on May 1st, 1892. It died on July 23rd from hydrophobia, after nine days' illness, a duration of disease considerably longer than was afterwards the average among the dogs attacked in Madeira. I hesitate, therefore, to accuse this animal of having introduced the epizootic into the island at the beginning of June; for if, on the one hand, an incubation of over sixty-seven days, though longer than that observed in the other cases, is not impossible, yet, on

the other hand, the saliva of this dog must have acquired infectious properties at a very early day of the incubation. But it is known that among dogs in countries where the disease has been long established, there is a much longer incubation period than among dogs inhabiting a hitherto uninfected territory, and the predisposition of the (if I may so call them) uninoculated Madeira dogs may have determined their sensibility to the saliva of the Lisbon dog.

At Madeira the epidemic disappeared as suddenly and completely as it broke out, for since the first week of December, 1892, up to this very moment no new cases have been registered. Whether this was due to the action of the police in severely imposing the use of the muzzle, or because the infected dogs had been all destroyed, it is not possible to say; it is to be hoped, however, that the island will again enjoy perfect freedom from this terrible disease. The acuteness of the outbreak among the human population was quite in proportion with that among the dogs. The first victims were two children, who died at two days' interval from each other during August. The incubation periods were thirty-eight and forty days respectively, and the duration of their illness was three and four days. The average of the incubation among the human sufferers was forty to sixty days. The two children above-mentioned died nearly three months after the appearance of the disease among the dogs, and many persons had been bitten before them; yet there had been no deaths reported anterior to theirs. This gives practical support to the view that the virus had to migrate through many dogs before it acquired a concentrated power of infection, sufficient to destroy the human vitality, which is much more resistant to its action than is the vitality of dogs and other animals, and this is a dogma now very generally accepted by bacteriologists. The *post-mortem* examinations of the dogs, which were published by the veterinary officer of the district, Senhor Tierno, show that in almost all cases acute gastro-enteritis, peritonitis, and general inflammation of the abdominal organs were present. The inoculations of the medulla on guinea pigs and rabbits gave positive results. The treatment of the human victims was directed towards the symptoms. One lady bitten was treated at the Institut Pasteur, and has enjoyed good health up till now.

In conclusion, I may be allowed to append the following short summary of my own conclusions drawn from the history of this epidemic: (1) Hydrophobia is never spontaneous in origin. (2) An outbreak of hydrophobia spreads with much

greater severity, and with a much shorter incubation period, in a country where it has been freshly introduced. (3) The epizootic can be got rid of by the extermination of all animals infected and suspected. (4) Dogs may recover spontaneously from hydrophobia.

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## IDIOPATHIC HYPERTROPHY OF THE HEART IN A HORSE.

BY PROFESSOR M. F. MAURI, TOULOUSE VETERINARY SCHOOL.

IDIOPATHIC HYPERTROPHY of the heart is a somewhat frequent affection among horses of the southern breeds in France. Endowed with a nervous temperament, and submitted to the most violent and sustained exercise, they soon begin to show all the signs of being overdone. Under the influence of this excitement, the heart's contractions are energetic and hurried, and, at the same time, there is produced a diminution of arterial tension, and an increase of venous tension, with dilatation of the capillaries. The visible veins then become turgescent, and the integuments are congested.

These phenomena may be transitory, and everything become normal again after a few hours of quiet. But as this severe exertion is frequently repeated, so the exhaustion is also recurrent and prolonged incessantly. As a consequence, the resulting asystolism may become permanent; the cardiac cavities, overcharged with blood, do not entirely regain their normal dimensions, and the capillaries yield to the excentric force that distends them. The contraction of the muscles also contributes to produce this result by compressing the arteries, in which the blood cannot flow so abundantly. The heart must, therefore, contract all the more energetically, and hence hypertrophy of the myocardium.

One of the first consequences of this state of affairs is the tendency to invert the relationship existing between the arterial and venous tensions. In the normal condition, the tension is much more considerable in the arteries than in the veins. When the heart is checked in its functions, the difference diminishes, or tends to operate in an inverse sense —that is, there is diminution in the arterial tension and augmentation in that of the veins. This is the phenomenon that distinctly characterises the asystolism, the consequences of which are always serious, because of the anatomical and functional disorders it induces.

I have had the opportunity of observing a new case of this kind in a horse of Ariege, nine years of age, and dark bay in

colour. This animal was brought to my notice because for about a month it had lost its liveliness, and its appetite had become very capricious; while going, it was sometimes seized with trembling and shivering, and looked as if it would fall. Its actual condition contrasted strangely with its antecedents, it having been a horse of great energy and speed, travelling every day a distance of nearly thirty-eight miles.

When I saw the animal it was dull and prostrate, and apparently indifferent to everything passing around it; it at times seized a few stalks of hay that it ate with great indifference. At the first examination, what more particularly attracted attention was the excessive pallor of the mucous membranes. Those of the mouth were of a dull white tint, as in the most advanced anæmia; the conjunctivæ were equally colourless. But the attention was quickly attracted to the circulatory apparatus by the enlargement of the superficial veins, and by the commotion of the heart in the thoracic cage. The jugular showed a venous pulse which was at intervals most marked. When the hand was applied to the side of the chest behind the left shoulder, it was perceived that the heart's beats were more powerful than they are normally; the hand was repelled at the moment of the precardial shock as if the internal surface of the ribs had been struck by the fist or a hammer. The beats of the heart, which were sixteen to twenty per minute, succeeded each other in a very irregular manner, and in such a way that the hand felt three or four successively precipitous beats, then a certain period elapsed during which nothing was felt. Soon afterwards a new series of beats would occur, the duration of the interval separating the series being generally a quarter of a minute.

The pulse indicated a great depression in the circulation; it was small, irregular, and scarcely perceptible, being only very evident when the palpitations of the heart took place.

When the dimensions of the heart were taken by percussion, it was found that this organ had acquired an altogether abnormal volume, from the exaggerated extent of the precordial dulness. On auscultation, it was noted that there was an absence of respiratory murmur throughout the whole extent of the space where the lung had been displaced by the heart. On the limits of this region and in the neighbouring parts, the respiratory murmur could be heard, accompanied by sibilant *râles*. The sounds of the heart did not offer anything abnormal except the irregularity in their succession

and their increased intensity; they were not accompanied by any *souffle* that might lead to the supposition that there were lesions of the valves or orifices of the organ. When the animal was compelled to move at a trot, its condition was so aggravated as to become alarming. The respiration was accelerated in a manner quite disproportionate to the exertion, and became dyspnœic; the beats of the heart were irregular, very strong and frequent, and there were no longer those brief intervals in which, while the animal was at rest, they became indistinct. The venous pulse was very apparent in the jugulars, in which the blood wave could be seen extending along the whole course of these vessels, and gave an idea of the violence of the corresponding ventricular systoles; at the same time the pulse was imperceptible. The horse soon refused to go on; it was anxious-looking and trembling, and stood with its legs apart as if to prevent itself falling.

During the days I had this horse under observation, its condition went from bad to worse. It was always dull and ate little; it had a weak and short cough, and never lay down. At certain moments there were a number of heart palpitations, varying from four to eight, which brought on the convulsive shiverings and tremblings that persisted for about half a minute.

Seven days after its admission into our hospitals, the patient had a cardiac attack, although it was standing perfectly quiet in its stall. It was seized with more severe tremblings than usual, and longer in duration. The precordial shock manifestly raised the thoracic wall, and the respiration became dyspnœic; while the animal hung back on its head-collar, staggered, and would certainly have fallen had it not been supported by the stall. From this time forward the same phenomena were observed daily, and they produced a rapid depression of the animal.

The diagnosis was *idiopathic hypertrophy of the heart.*

The disease having been declared incurable, the horse was given over for slaughter, after having been twelve days under observation.

*Autopsy.*—The circulatory apparatus was carefully examined, and there was no aneurism of the anterior or posterior aortæ, nor yet in the divisions of these arteries. On opening the pericardium, about one and a half pints of serum escaped. The heart was very voluminous; it weighed about eight pounds—a considerable weight considering the small size of the animal. The capacity of the auricular and ventricular

cavities was very sensibly augmented, while the walls of the ventricles were thickened, but those of the auricles were about normal. The right auriculo-ventricular valves were slightly thickened, and this occasioned a certain amount of insufficiency; in fact, by injecting water into the right ventricle through the pulmonary artery, the fluid could be seen passing by small quantities through the tricuspid valve, which incompletely closed the auriculo-ventricular opening, and flowing into the corresponding auricle. The same experiment made on the left side of the heart, through the medium of the common aorta, showed that the mitral valve hermetically closed the left auriculo-ventricular orifice.

In order to ascertain the increase in weight of this hypertrophied heart, a heart was taken from a dead horse of about the same size as the one which had been our patient. This heart weighed nearly five pounds, so that there was a difference of three pounds between the healthy and diseased one.

The anterior lobes of the lungs were emphysematous.

The causes of cardiac hypertrophy in animals are related to hygiene, for moral influences in them have little to do with it, though in man they play such an important part. It is generally believed that these disturbances in the cardiac functions are consecutive to primary lesions of the heart, and there is a tendency to deny the existence of idiopathic or essential hypertrophies. But these are to be met with in practice more frequently than might be supposed—cases of cardiac disease without any valvular lesion, or in which such lesion, if present, only plays a secondary part, without speaking of myocarditis or pericarditis.

There exist, in reality, a series of diseases of the heart which are manifested at first by simple hypertrophy, leading to the phenomena of acute or chronic asystolism. The grand discovery of Boillaud, of the coincidence of rheumatism with valvular affections of the heart, has absorbed all the attention of clinicians in the study of the organic obstacles located at the orifices, and their consequences; so that it has come to pass that all primary diseases of the heart, beyond endocarditis, pericarditis, or myocarditis, are completely denied. And yet Corvisart had already noted many causes—blows, falls, hunting, and efforts of all kinds. But of all the causes, the most important, according to that authority, are the moral affections. With animals, however, this cannot be so, and the causes which exert an influence on their central circulatory apparatus are all of a mechanical nature. The

heart ought to be considered merely as a force-pump propelling the blood to the summits of two arterial cones—the greater and the lesser circulations—on the one part, and aspiring the blood, on the other part, from the summits of two venous cones that terminate the two circulations. It will readily be conceived that all the disturbance that occurs in the double vascular apparatus that forms with it a continuous whole, may react on the cardiac centre itself, and disturb its functions without our being able to discover any organic alteration.

As we have seen at the commencement, over exertion is certainly the cause that most frequently induces functional derangement of the heart in our animals. But it is possible, also, that this stimulation is not limited to producing purely mechanical disturbance in the circulation, for it may influence by reflex action the nervous system that presides over the functions of the heart, bringing about cardiac ataxia with hypertrophy, and ultimately the asystolism which is the termination of the affection.

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## GLANDERS AND FARCY.

BY H. W. SOUTHALL, M.R.C.V.S.

*(Continued from page 164.)*

*Post Mortem Lesions.*—The mucous membrane lining the nasal passages and facial sinuses is much inflamed and covered with ulcers, from which issues a purulent discharge. The intermaxillary glands are congested, as are their ducts, which are also thickened; the larynx, etc., are also affected. The lungs in almost every case of Glanders are more or less inflamed; glanderous nodules form in the substance of them, and many of these nodules contain pus and the bacilli. The distinguishing feature between tubercle and glanders is that these glanderous nodules never ulcerate.

The Glanders nodule, when seen under the microscope, is found to be made up of granulation tissue, consisting of small round cells, and very few leucocytes or lymph corpuscles; also a few larger nucleated cells, with here and there fragments of disintegrated connective tissue. After a time, as the nodules become rather larger, the centre assumes a yellowish appearance, or small opaque points may be seen; ultimately at these points we have tissue breaking down into soft, pulpy, or caseous purulent material.

*Symptoms of Chronic Glanders.*—This condition is frequent

in coarse, lymphatic, old and worn-out animals; it may continue for many months or years without affecting the general health of the animal. The local symptoms are more numerous than the constitutional. There is found to be a discharge from one or both nostrils, mostly from the former, and very often the left one; there is also enlargement of the submaxillary lymphatic glands. The discharge at first is like that of a common catarrh, but after a time it becomes thicker and viscid, collecting round the nostrils; the discharge is not fœtid. The mucous membrane of the nostril is usually of a copper colour or dull leaden hue, or it may be paler than usual. This form is often very difficult to diagnose, as you may have no other symptom present but the discharge from the nose.

*Pulmonary Glanders.*—In this form there is neither discharge from the nose nor ulceration of the Schneiderian membrane; in fact, there are no real diagnostic symptoms. The animal is weak, emaciated, and sweats on the slightest exertion; it has a dry cough, and œdema of the extremities is sometimes present; the appetite is capricious; and the animal may remain in an unsatisfactory condition for several weeks or months, but the disease is generally fatal in three or four weeks. Symptoms of Glanders and Farcy may rapidly appear, and carry the animal off very quickly.

*Post Mortem Appearances.*—The lungs will be found studded with nodules varying in size; nodules may also be found in the liver, spleen and kidneys; the splenic veins are filled with thrombi.

*Sub-acute Glanders*, or the ulcerative form of chronic Glanders, is more easily diagnosed. The horse is off his feed, has a tendency to shiver when exposed to cold; the discharge from the nose is of a starchy or gluey character, and is often tinged with blood; the mucous membrane is pale and unhealthy, and is covered with deep ulcers and nodules; these ulcers have ragged edges, and they may cicatrise, but eventually they again resume their activity, and acute Glanders sets in and carries the animal off.

*Acute Farcy.*—This form may either result from direct inoculation or from infection, and also follow some exhaustive disease, probably diabetes. The first symptoms are those of fever, rigors, elevation of temperature to 106° or 108°F, and swelling of the extremities. The engorgement of the limbs resembles that of acute lymphangitis, the swellings increase and decrease suddenly, and are attended with pain and lameness. Farcy "buds" are thrown out in considerable numbers,

and towards the second or third day each bud ulcerates and pus escapes, which is often tinged with blood. The lymphatics become corded, and are developed between the ulcers and nearest lymphatic glands; they soon become nodulated, suppurate and form long ulcers. The lymphatic glands seldom suppurate. Acute inflammation of the joints, with great and intense swelling round them, sometimes precedes this form of Farcy.

*Chronic Farcy.*—The special features are local, and indications of fever are often remittent and very insignificant. In this disease the local symptoms consist of circumscribed inflammatory swellings, forming the nodules or buds on the skin and various parts of the body, which soon ulcerate and discharge a purulent fluid. The Farcy ulcer has no tendency to heal like ordinary sores. The parts most liable to be invaded are those about the flank, neck, forearm, thigh and head. This form differs from the acute only in intensity and duration.

*Diagnosis.*—Acute glanders is easily diagnosed, although sometimes it is mistaken for strangles; but after a careful examination no mistake ought to be made, as in strangles the swelling under the jaw has a tendency to soften and form pus within; whereas in Glanders it has no tendency to suppurate. Chronic Glanders, when the ulcerations are present on the bituitory mucous membrane, is easily diagnosed. In cases, however, when these are not present, it is very difficult, and a careful examination is necessary. Firing, blistering, or a dose of purgative medicine, will often bring on acute Glanders. The presence of the bacillus in the discharge is positive evidence, and inoculation of some animal with the discharge is a sure test.

*Comparison of the Sanitary Laws of Different Countries.*—Glanders is, perhaps, the most prevalent in Great Britain and next to this would probably be Russia. It is a point worthy of notice that the laws relating to Glanders in these two countries are more lax than in any others. Again, in those countries in which the laws are perfect and are carried out in a proper manner, the disease is rarely ever seen. Take Norway, Sweden, or Denmark, for example; in the former countries only one case occurred in the year 1889; in Denmark only one in 1890. Their laws are very similar, and prescribe the destruction of glandered horses, while those that have been in contact (in the same stud), are isolated for three months.

Compensation to the amount of half the value is allowed

for diseased horses, and full value if they should turn out to be healthy on *post-mortem* inspection. In France and England no compensation is allowed for diseased horses, and in these two countries the number of outbreaks fail to get less. I will not say this in the direct cause of this incident, but I maintain it has a great deal to do with it. It is no encouragement whatever for horse owners to report the disease, and in stamping it out the sympathy and co-operation of owners is most essential. Existing legislation on Glanders and Farcy in England is governed by the Contagious Diseases (Animals) Order of 1886 wherein the provisions of the Act of 1878, together with certain sections of the Act of 1886, are made to apply to them. One great objection to these laws is that they legislate one way for Glanders and another for Farcy. They do not prescribe compulsory slaughter for Farcied horses, but allow the local authority to regulate the movement of such animals, and if the indications of Farcy disappear, (as they do sometimes, only to break out again), such animals are considered safe to all intents and purposes. Horses that have been condemned for Glanders are allowed to live for several weeks, until it is deemed fit to serve a notice on the owner requiring him to slaughter.

Again, the local authorities have to carry out these defective provisions, and past experience of their management of other infectious diseases reveals results far from encouraging to those interested in the suppression of Glanders. The local authorities, in carrying out veterinary sanitary measures have proved themselves a complete failure.

Bearing these facts in mind, it now remains for me to depict what I think would bring the disease under our control.

Firstly, no distinction should be made between the two forms of the disease. What is law for one should be law for the other.

The slaughter of diseased animals should be compulsory. In suspicious cases all animals should be examined by a person appointed by the Agricultural Department; he should be a man of great experience and acknowledged ability; so that the diagnosis of the local veterinary surgeon should be confirmed by this Government official. Compensation to the amount of one-half the value for diseased animals, and full value for those found healthy on *post-mortem* examination should be given.

In great Britain, London may be said to be the hot-bed of the disease; most of the cases occurring outside this city can

be traced to London. It is in London, and in some of the infected studs, too, that our Government have made contracts whereby reserve remounts for the army could be obtained in case of war. What the result of such an arrangement would be is not difficult to guess; horses would be selected from these studs, apparently free from glanders, and when they got on board ship and in camp, case after case would break out, leaving our cavalry worse off than before.

Dr. Fleming and other army veterinary surgeons who were present in the Crimea, know only too well what havoc it played with our horses during that memorable period. A central authority ought to undertake the administration of the law, and so relieve the local authority of their present burden. The sooner glanders is added to the programme of the Agricultural Department, the sooner will it be eradicated. All horses in infected studs should be branded in a part of the body that would be unnoticed by the general public. I think the hoof would answer the purpose very well, seeing that it is a non-sensitive structure, and by so doing we would protect ourselves from the R.S.P.C.A.

For the first week after an outbreak the horses should be visited daily by a veterinary surgeon, and after that they should be inspected regularly twice a week. Any horse showing a rise of temperature, or any other suspicious symptom, should be immediately isolated as suspected. A careful watch should be kept over him until such symptoms pass off. No branded horses should be sold or sent away to the country without a license from the sanitary authority. Infected stables should have their walls, mangers, &c., well scalded with a hot solution of perchloride of mercury, and when this is dry well washed with carbolic whitewash.

The drainage, ventilation—in fact, all the sanitary arrangements—should be examined by an inspector, and if he has any fault to find it should be remedied as early as possible; overcrowding should not be allowed. I am inclined to think great stress should be laid on the hygienic arrangements of all stables, as it is a well-known fact that we seldom or never see Glanders in stables in which the hygienic arrangements are good.

One of the greatest triumphs in veterinary hygiene was won in 1796, when it was introduced into the army on the principles of Coleman; before this Glanders used to carry off whole regiments of horses, but now it is seldom seen; it also did a great deal to check cases of canker and grease.

Horses coming into England from countries where the

disease exists, should bring with them a certificate stating that they are from sound studs; they should be examined by an English veterinary inspector, and also be registered by the central authority.

This to some of you may seem a little too stringent, but our Australian friends here to-night will bear me out that it is only such measures as these that have kept their country free fro n this disease.

*Mallein.*—A discovery has been recently announced, which, if it possesses the good qualities it is said to, will have a distinct bearing on any future legislation on Glanders. I refer to Mallein. This was discovered by a Russian veterinary surgeon named Kalning, who, being deeply interested in the remarkable action of Koch's "tuberculin," made a preparation on similar lines with the *Bacillus Mallei*. He diluted 5 grammes of a glanders culture with 20 grammes of H20 on potatoes, kept it for 20 minutes on four different occasions at a temperature of 120° F., filtered it, and obtained a clear yellow liquid, which he again exposed to a temperature of 120° F. for a quarter of an hour.

Five horses received a subcutaneous injection of 1 gramme, with the result that the temperature of the three glandered horses rose respectively to 40·3°, 40·5°, 40·70 C., the temperature of the healthy counter-proof remaining normal. At this stage of the experiment Kalning unfortunately inoculated himself and died.

Helman, another Russian veterinary surgeon, confirmed these results, and out of eighteen horses inoculated, every glandered horse gave a marked reaction, except one whose temperature did not rise above 38° C. Such favourable results encouraged other scientists to experiment on similar principles; their methods of preparation differ from the original in some cases, and the result of their investigations were more variabie.

The quantity injected differs from the original. Kalning injected 1 gramme of his liquid, as did Helman; but Preusse injects 0·1 to 0·3 grammes, Heyne 0·25 to 1 gramme, and Nocard fixes the dose to inject at 0·25 grammes.

The seat of inoculation is the skin of the neck, which, together with the syringe, is cleansed with a 5 per cent. solution of carbolic acid. Preusse, Nocard, Pearson, Duckerkoff, Lothes, and Degive, came to the same conclusions as Kalning and Helman. On the contrary, the results of Codiot, Shilling, Peters, and Fehlisch, are not so favourable; they put it down as a very unreliable agent. Peters and Fehlisch

observed that the intensity of the reaction was not in proportion to the extent of the disease. Several glandered horses after inoculation had but a slight rise in temperature, and one horse in which it had strongly reacted was found on *post mortem* examination to be healthy.

The experiments of M. Nocard are perhaps the most remarkable, and most encouraging for its further use. He uses the mallein prepared by M. Roux, of the Pasteur Institute; in one stud alone mallein detected 126 horses out of 247 without committing a single error. He considers if the temperature of the inoculated animal exceeds 2 degrees, it may be said to be glandered; if the rise is between 1·5 and 2 degrees, with considerable œdema consecutive to inoculation, and marked hyperthermia after 24 hours, the verdict is the same. If the temperature does not exceed 1·5 degrees, such an animal is said to be free from the disease.

M. Roux, experimenting with mallein on subjects with various affections, viz., traumatic lesions, synovitis, arthritis, phlebitis, melanosis, chronic pneumonia, and tetanus, found the hyperthermia produced by the injections varied from nil to 1½ degrees (C.).

These are the principal facts made known about the action of mallein on the animal body, and its application in practice; they point out conclusively:—

1. That the action of mallein is not an absolute test for the presence of the *bacillus mallei* in the animal economy;
2. That were its use adopted for diagnosing the disease, a few healthy horses would sometimes fall victims to its aberrations;
3. That it is by far the most superior method yet discovered for diagnosing the disease in its latent stage.

It is quite possible, however, that the present anomalies in its actions may be due to differences in its methods of preparation. Let us hope that this is the case, and that a method of preparation may yet be discovered which, while easy to carry out, will be exact in its results, and yield a material possessing constant properties.

I have said nothing as yet about the treatment of Glanders and Farcy. But there is no treatment; various remedies have been tried, but they have all failed to cure the disease. Some authorities say they can cure Farcy. Certainly, it may be checked for a time, but only to break out in a worse form.

There is a very wide field open to the younger members of our profession in this inoculation and germ theory. I have no doubt that some of the honourable members now sitting before me will some day discover a remedy whereby this dreadful disease will be fully brought under our control, and in so doing they will confer a blessing on the world, and make a name for themselves which will be remembered for many years to come.

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## NEW PROOFS TENDING TO SHOW THAT THE PNEUMO-ENTERITIS OR SEPTIC PLEURO-PNEUMONIA OF CALVES IS CAUSED BY THE INHALATION OF DUST GIVEN OFF FROM FORAGE.*

BY PROFESSOR GALTIER, LYONS VETERINARY SCHOOL.

I HAVE already published the result of investigations which have enabled me to determine the pathogenic *rôle* of forage in localities where the septic pneumo-enteritis of calves prevails. I have shown that the affection may be produced experimentally by the intra-tracheal injection of a certain quantity of water in which have been macerated some hay from farms on which the disease has manifested itself. From these facts I have gained information and indications which may be useful to farmers in preserving their animals. I need not refer at present to the prophylaxis that I have deduced from my researches, as I shall do this hereafter, and at the same time demonstrate how we may on a larger farm, by following my advice, cause this disease—which had hitherto been very frequent and destructive—to disappear almost completely. I desire now to add to the facts I have already made known a new experiment that seems to me very demonstrative, and establishes in a peremptory manner that this affection is an infectious malady produced by a germ that the animals derive from their forage or litter.

I have experimented with several specimens of hay and of litter sent from a farm where, for a long time, the disease has made increasing ravages. I have killed animals which presented the lesions and the microbes of septic pneumo-enteritis, and which only received the water in which these specimens had been steeped, as certainly as those which had been inoculated with the lesions of calves that had died from the disorder. Rabbits which have succumbed to the injection of a certain quantity of water that had served to wash forage or litter, have

* Note presented to the Société Centrale de Médécine Vétérinaire on January 11th.

presented general congestion of tissues and organs, with the lesions of broncho-pneumonia, pleuritis, exudative pericarditis, etc., as well as numerous septic pneumo-bacilli. The same maceration water, when injected in a decilitre dose into the trachea of four sheep and four goats, has produced illness. Two sheep and two goats were dead at the end of the second day, and showed the following lesions: Yellowish false membranes covering the pleura on both sides of the chest; double pneumonia, interstitial pneumonia with thickening of the interlobular tissue, which was infiltrated, and parenchymatous pneumonia with exudation into the alveoli; intense bronchitis; congestion and hypertrophy of the lymphatic glands; enteritis; etc.; numerous septic pneumo-bacilli in the various lesions. The other two sheep and goats, after having been ill and become considerably emaciated, yet appeared to have recovered, but when killed on the eleventh day after inoculation they offered manifest lesions of broncho-pneumo-pleuritis in process of resolution.

The septic pneumo-bacilli obtained from the lesions in the rabbits, goats and sheep in question, were cultivated in broths, and on gelatine and agar agar; and the cultures on being inoculated on guinea pigs, rabbits, horses and cattle, have reproduced septic pleuro-pneumonia. The following are the principal results obtained in a bull calf a few months old, and a cow aged seven years, both inoculated, by intra-pulmonary injection, with a culture derived from the forage already alluded to.

The calf died on the third day, after exhibiting most unmistakable symptoms of broncho-pneumo-pleuritis, very marked breathlessness, fœtid diarrhœa, etc. At the autopsy the following lesions were found: Manifest alteration in the blood, which was dark, non-coagulated and diastashæmic; congestion of the glandular system; numerous hæmorrhagic patches on the pleura, pericardium, and peritoneum; lesions of exudative pleuritis, with a yellowish, fibrinous, pseudo-membranous pellicle; considerable infiltration and thickening of the sub-pleural and interlobular tissue; lesions of lobular pneumonia and bronchitis; lesions of acute enteritis; congestion of the spleen, liver and kidneys. The cow resisted the disease a little more, and died on the sixth day, after presenting tympanitis, diarrhœa, breathlessness, colic, moaning, signs of broncho-pneumonia, and emaciation. At the autopsy, similar lesions to those found in the calf were noted.

In continuing my researches with the afore-mentioned

culture, I have been able once more to verify the exactitude of certain particulars which are inherent in septic pneumo-enteritis, and which I have remarked upon in my previous communications: a first attack, so far from conferring immunity upon a bovine or ovine animal, renders more easy and serious a second attack; the horse is almost completely refractory; young animals—kids, calves, lambs—made ill experimentally, may, like those which have contracted the disease spontaneously, show lameness and paralysis; the malady is transmissible from mother to fœtus, and abortion may occur. I have, in fact, discovered the presence of septic pneumo-bacilli in the fœtus of the rabbit, guinea pig, sheep and cow rendered diseased experimentally; and it results from my experiments that intra-uterine transmission is a very general rule. I have seen rabbits, guinea pigs, and a goat abort. I have also seen two kids, a lamb, and a calf lame in one or more limbs: and one of the two kids died after being paralysed in the hind quarters. I did not succeed in making two horses, already glandered, seriously ill by inoculating them with strong doses of the cultures. I have killed, by septic pneumo-enteritis, two sheep, two goats, a calf, a cow, and two young pigs, which had resisted a first inoculation, by inoculating them again some time afterwards; and at the autopsy I have noticed the concomitance of old and recent lesions.

To sum up, it seems to be demonstrated from my investigations:

1. That the microbes which determine septic pleuro-pneumonia are found in the forage and litter of the farms on which the affection prevails;

2. That they are more especially introduced into the organism of the animals along with the dust disengaged from the forage and litter which has not been properly removed before use, or which has been disengaged in the cowsheds or in their immediate vicinity;

3. That the disease, which may attack several species—such as the ovine, caprine, porcine, and more particularly the bovine—does not affect solipeds;

4. That it is more especially serious in young animals, and may be accompanied in them by lameness, or even paralysis;

5. That it is transmissible from the mother to the fœtus, and it may cause abortion;

6. That a first attack, more or less benignant, may, though leaving lesions more or less appreciable, render a second attack more easy and more serious.

# Editorial.

## THE PROPOSED VETERINARY SCHOOL IN IRELAND.

As was announced in our last month's issue, the present Government, doubtless from political motives, has promised to contribute fifteen thousand pounds towards the establishment of a veterinary school in Ireland, provided more money is raised in other quarters to place it on a proper footing. We have said that the offer has been made from political motives, and we are constrained to view it in this light, because the Government appears to be ready to make heavy sacrifices of the public money and national welfare to maintain itself in power through the medium of the Irish vote in the House of Commons. For it must be remembered that the promotion of veterinary medicine has never found a friend in any of the many Governments that have existed since the commencement of this century, at least so far as pecuniary aid is concerned; for beyond a small annual grant for a few years to the Royal Veterinary College in its early years, they have given no aid to the maintenance or development of this very important branch of medicine, but have left it to struggle on or perish, as might chance to happen, without concerning themselves in the slightest degree. Even when an appeal was made to the same political party, some years ago, for a small grant to enable the Royal College of Veterinary Surgeons to locate itself in a home worthy of its position, and though the appeal was backed up by one of the most representative and influential deputations that ever waited on a Cabinet Minister, it was met with a curt refusal. Now, though the country is abundantly supplied with veterinary schools—thanks mainly to the enterprise and public spirit of private individuals,—and though there is really no need for even one more, the Government comes forward without much solicitation, and offers a sum one-half of which would have been thankfully accepted by the Royal College when money was urgently necessary.

However, the sum promised will not go a long way in founding anything like a well-furnished and properly-organised school, and it will be interesting to observe the result of demands upon the Irish public to make up the amount required for that purpose. That Ireland is as well entitled to have a veterinary school as England or Scotland

goes without saying ; and doubtless she would have had one many years ago had there been anything like the enterprise and independent spirit among her people that is so marked a feature on this side of the Irish Channel.

At any rate, now that the Government has shown that public money can be granted for this purpose, the present veterinary schools—which have done the United Kingdom and our Colonies such splendid service by providing them with well-trained veterinary surgeons without receiving the slightest recognition or aid—are justified in claiming equal sympathy and pecuniary assistance, and cannot be reasonably refused.

In the meantime we may remark on the apparent absence of the veterinary element in all that has been done in the obtainment of this grant for the institution of a veterinary school in Dublin, and in its proposed organisation; there does not appear the name of a veterinary surgeon anywhere, and this is an extraordinary fact, though not at all a creditable one. And the scheme of the proposed school which we have seen, seems to be but a servile copy of the organisation of the London Veterinary School, and in some points this is not a commendable one. In the first place, the pernicious subscriber system is adopted, and this is simply a disgraceful competition with private practitioners—its own students—whom it publicly underbids, and on such terms as would not be tolerated in any other profession. Such a system does not exist in any other school, and in Dublin, if carried into operation, will inflict a more grievous wrong on the veterinary surgeons there than it does in London. It is unprofessional and degrading in the extreme. And then we have the farcical Principal and Dean hobby introduced into the management of the school; two individuals to perform the functions of one, at double cost. If the copyists had inquired into the organisation of the other veterinary schools, in which the teaching is in no way inferior, they would have found that the expensive luxury of two such functionaries is not necessary, and indeed would be an obstacle to good management ; or if they cast their eyes towards the Continental schools, in which the administration is very perfect, they would see in the French school a Director, who is also a teacher, but no Dean ; while in the German schools they would find a Dean (who is merely one of the teachers selected for the post for a limited number of years), but no Principal. There are other features in the arrangement which the veterinary surgeons in Ireland may think objectionable, and there can be no doubt that the

omission of some of the more prominent of these gentlemen from the scheme, as well as defects in the scheme itself, will cause ill-feeling among them.

The schools in Scotland, which obtain a considerable number of students from Ireland, will, if the new school is a success, probably suffer from the competition, but of this they cannot well complain, so long as it is conducted as such competition should be. What they will certainly complain of, however, is the establishment of a competing school by Government assistance, and there can scarcely be a doubt that such complaint will become greatly intensified when Government has to grant an annual subsidy to keep the school alive, as there is little prospect of its being able to maintain itself. If it subsidises one school, then it must do this for all the schools.

We have not learned whether it is intended to affiliate the school to the Royal College of Veterinary Surgeons, or to make it an independent licensing institution.

As the Irish Parliamentary Secretary (Mr. Morley) is an intense Home Ruler, and as it is he who has made the promise of the grant of money, it is not improbable that he may be induced to introduce surreptitiously his Home Rule principles by obtaining independence for the School in the matter of diploma conferring. The Royal College must look sharply after this business, as it would be nothing less than a great calamity, both for the profession and the public, to have the country deluged with Veterinary Surgeons regarding whose competency there would be no adequate guarantee. At present, all the schools are on the same footing with regard to the examination and graduation of their students, who all undergo the same tests by the same examining body; and this system ensures fairness and equality, as well as lends itself to improving the professional education of Veterinary Surgeons generally. The introduction of another licensing body would in all likelihood impair this uniformity, and could not but lend itself to grave evils, if not disaster. The medical profession suffers severely from this competition of licensing bodies; what damage would our small profession experience under such a state of affairs?

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## A NEW METHOD OF DESTROYING BIRD ACARI.

At a recent meeting of the Société Nationale d'Agriculture of France, one of the members stated, in speaking of the acari that infest birds, that he had resorted to a plan for destroying them which had proved perfectly successful. This was replacing the ordinary roosts or perches by young shoots of elder tree from which the pith had been removed, and into which numerous holes

had been drilled. On these perches being taken down every morning, they were placed vertically on a sheet of paper and then received a smart tap. Immediately the paper was covered with living acari which had been displaced from the tubular roost. During the first days there were hundreds of these parasites on the paper, but the numbers gradually decreased until reduced to two or three, and then to zero when the procedure was carried on for some time.

Another member confirmed these facts and mentioned that in the South of France he had seen rose shoots used as perches in cages, these having been perforated from end to end. The acari belonging to the genus *Dermanyssus* come forth at night to prey on the birds and then retire into the hollow spars, where they remain during the day. In striking the spars smartly the acari are dislodged, and can then be crushed.

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## FOOT-AND-MOUTH DISEASE IN A MALIGNANT FORM.

PROFESSOR KITT, of the Munich Veterinary School, has just published a very interesting work on aphthous fever, in which he gives some new observations on a malignant form of that disease.

It is not the first time that this malady, which is so serious from an economical point of view, though generally so mild in its character, has manifested itself in an extraordinarily malignant form. Zundel, Bouley, Harms, Guillebeau, and others have recorded occurrences of this kind in France, Germany, Switzerland, Belgium, and elsewhere.

In presence of the exceptional mortality caused by the disease, it has been asked if the diagnosis was not erroneous, and if it was not a new and hitherto unknown disorder, or a particular morbid association. Several authorities, and especially Bouley and Zundel, have suspected that it was anthracoid in its nature, but autopsies have not confirmed their suspicions. In these later years, owing to the new methods of diagnosis which have enriched medicine, it has been established that the disorder is really epizootic stomatitis (foot-and-mouth disease) in an exceptionally deadly form.

So recently as September and October, 1892, the scourge reappeared with this extraordinary gravity in Bavaria, and more than 1,000 cattle perished or were slaughtered *in extremis*. In Wurtemburg, also, the victims were numerous; in August, 21 cattle and 30 pigs, and in October, 229 cattle and 40 pigs, succumbed; while Baden also paid a large tribute to the disease. The owners declared that it was not aphthous fever, which they were accustomed to see in a benignant form, but a serious malady, such as anthrax or cattle-plague; and they were all the more opposed to the veterinary surgeons' evidence because the Bavarian law allows compensation for animals which have died from anthrax and cattle-plague, but not for foot-and-mouth disease. What made them still more tenacious of their opinion was the circumstance that the veterinary surgeons had discovered in the blood of certain carcases, bacteria somewhat resembling those of anthrax.

In consequence of these disputes, the Minister of the Interior delegated a Commission, composed of Veterinary-Surgeon Göring, Schwarzmaier, and Kitt, to inquire into the matter.

The most important and characteristic fact recorded in the report of the Commission, and which had been already noted for a long time in veterinary literature, was the *sudden death* of the animals—*apoplectiform* or *fulminating* in character—when the recovery from the exanthem was nearly complete. The animals had commenced to eat and give milk, when they fell as if struck by lightning while they were being milked or during feeding, so that they were often found dead with a tuft of grass or hay in their mouth. In some instances, however, death was not so sudden, but took place after some

hours' severe illness, during which the animals appeared to be very prostrate, exhibiting dyspnœa, intense muscular tremblings, extreme feebleness, staggering in the hind limbs, grinding of the teeth, and finally falling down and dying without convulsions.

The Commission also described cases in which death occurred during the eruptive period. In nearly all instances the fever was moderate—30·8° to 40° Cent., sometimes it was insignificant, and in exceptional cases very high—41° to 42° Cent.

It at times happened that in a cowshed one of the animals, often the best, succumbed, while with the others the disease passed through its regular cycle without any complications, or only presenting a purulent nasal catarrh with intermittent dyspnœa.

From their first visit, the members of the Commission recognised the disease to be Aphthous Stomatitis, from its characteristic symptoms and its co-existence in pigs; although in certain cases, in which there was tumefaction of the spleen, hæmorrhagic infiltrations, and long rods in the blood, the diagnosis could be established by a careful bacteriological examination and experimental inoculations. It was ascertained that there was nothing of Anthrax in these cases, and that the micro-organisms were cadaveric microbes which are sometimes mistaken for the real bacteria of Anthrax.

Among the lesions which Bouley and Guillebeau had already described, besides the exanthem, there was the hæmorrhagic gastro-enteritis, the absence of tympanitis, pulmonary œdema, and emaciation. Guillebeau noted in a moiety of the cases, in addition to these changes, ulcers on the pillars of the rumen. Lehnert had also found very extensive red hepatisation of the lungs, with or without pleural effusion. Ulrich and Wilhelm have seen aphthæ in the rumen, reticulum, and more especially in the omasum, some of the leaves of which were perforated or notched in their free borders by gangrenous destruction.

Johne has drawn attention to lesions in the myocardium, which were sufficient to account for a fatal termination. These were inflammatory patches which gave to the heart that appearance designated "tiger aspect" (*tigerung*); and a microscopical examination of the yellow spots disseminated in the muscle, revealed cloudy swelling and fatty degeneration of the contractile fibres, as well as inflammatory cellular infiltration in the interstitial tissue.

According to Lydtin, death might occur from asphyxia, due to the passage into the larynx of large flakes of epithelium detached from the mouth and pharynx.

During the course of the epizooty in Bavaria, the veterinary surgeons noticed more particularly hæmorrhagic gastro-enteritis, myocarditis, pulmonary œdema, as well as hypostatic lesions and interstitial hæmorrhages.

In the partial or complete autopsies which he made, Professor Kitt found examples of these diverse lesions, along with the usual characters of the exanthem, from which he was convinced that unity in the pathological alterations did not exist, and, consequently, the cause of death was not always the same. In some cases death was due to suffocation resulting from the diffuse congestion and œdema of the lungs, with passive dilatation of the heart; in other cases it occurred from syncope or collapsus of the heart, caused by myocarditis; finally, death might also be immediately due to hæmorrhagic gastro-enteritis.

Kitt also mentions having observed in pigs erosions on the snout, tongue and palate, with internal alterations, such as pulmonary œdema, hydropericarditis, hydrothorax, purulent pleurisy, and broncho-pneumonia.

He naturally did not include in the malignant form, the serious complications in the feet, the gangrene of decubitis, abortion, etc., all of which are capable of causing death.

In Bavaria the disease prevailed as extensively in the well-kept cowsheds as in those the hygienic condition of which left much to be desired. Notwithstanding the greatest care and the most scrupulous disinfection, there were fifteen deaths among the cows in a farm, which for cleanliness, ventilation, etc., was a model. Food also appeared to have no influence on the contagiousness and malignancy of the malady, though exception must be made in the case of the coarser kinds, and also with regard to the milk from diseased cows which was given to others.

There remain the facts to be explained; and here recourse must be had to hypothesis, as the exact nature of the virulent element in stomatitis is still unknown; for we are in ignorance as to whether it is a bacterium or a protozoon, though we are certain it exists in the saliva, the vesicles, the fæces, etc. Schottelius, thanks to a delicate *technique*, has recently discovered in the fluid of the vesicles and the patches in the myocardium of the ox, very motile spherical cells which are usually ranged in chaplets, and for this reason have received the designation of streptococci. Cultures of these elements, when inoculated, give rise to fever and salivation, but not to the typical aphthous eruption seen in the bovine species; but they have no effect on the pig, sheep and other animals.

It is entirely owing to our ignorance of the nature and biological properties of the virulent element, that the prophylactic measures for this disease are still more or less empirical, and that, on the other hand, any satisfactory explanation of the malignity of the disorder is for the moment absent. At present, it is permissible to suppose that, as in other well-known contagia—such as anthrax, fowl cholera, swine erysipelas—there are degrees in the virulence of the contagium of Aphthous Stomatitis. The attenuation and return to virulence of certain germs may even be obtained at will by artificial means.

The question of concentration of the virus is also a point to be considered, and, perhaps, it is to this factor that may be attributed the grave cases observed by Bouley, Guillebeau and others, among adult cattle, but principally calves and pigs, to which uncooked milk from diseased cows had been given several times a day, so that, in a manner, they received each time a supplementary dose of the virulent substance. But if there is really any foundation for this explanation, it is certain, nevertheless, that it will not apply to all cases.—*Annales de Médecine Vétérinaire.*

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## VETERINARY OFFICERS OF THE AGRICULTURAL DEPARTMENT.

It is announced that, consequent on the retirement of Professor G. T. Brown, C.B., from the position of Director of the Veterinary Department, the following appointments have been made in the office of the Board of Agriculture:—Mr. A. C. Cope to be Chief Veterinary Officer, Mr. W. Duguid to be Assistant Veterinary Officer, Major J. T. Tennant to be Principal (Diseases of Animals Division). The services of Professor Brown will continue to be at the disposal of the Board in a consultative capacity.

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# Reviews.

SHEEP: BREEDS AND MANAGEMENT. By JOHN WRIGHTSON, M.R.A.C., F.C.S. (London: Vinton & Company, Ltd., 1893.)

THIS is the first of a series designated The Live Stock Handbooks, brought out under the able and careful direction of Mr. Sinclair, Editor of the *Live Stock Journal*, *Agricultural Gazette*, etc., and which give excellent promise as guides

and instructors to those whose business or pleasure it is to concern themselves with the more important of the domestic animals. And a better commencement could not have been made than that on the sheep, when dealt with by the accomplished President of the Downtown Agricultural College. who is also Professor of Agriculture in the London Royal College of Science. Manuals on the breeds and management of this valuable ruminant are not too numerous, and there was plenty of room for another; but we think we are not overstating the case when we assert that nothing better, from a flockmaster's point of view, has ever been offered for acceptance. To the veterinary surgeon also the book will be found of great interest and value, for the sheep is an animal that ought to come more within his purview than it generally does, and he ought certainly to know something of the various breeds, their idiosyncrasies, general management, diseases, etc. In this volume these subjects are all treated by one who is not only thoroughly conversant with everything pertaining to the ovine species, but whose literary and descriptive power lend a charm and an interest which render the whole doubly attractive; so that apart from the information the book conveys, its perusal affords positive pleasure. Take, for instance, the prologue, which could only be penned by one who loved rural life, and the sights and sounds which conspire to render it so delightful and fascinating to the student of nature. "There is genuine poetry in pastoral life which it would be sad to lose. Nevertheless, agricultural science and literature are between them rapidly taking the romance out of it. Perhaps we should add hard times, and the vital importance of making things 'pay.' It is a pity to lose the faculty of discerning the beauty of 'the dewy eve and rising moon,' or listening as 'the amorous thrush concludes his song'; or only to think of the price of mutton and of wool, or of lambs as fore and hind quarters.

"The haunt o' Spring's the primrose brae,
The Summer's joy the flocks to follow;
How cheerie through the shortening day,
Is Autumn in her weeds o' yallow!

"The sweetness of pastoral life is going. It is disappearing under the influence of commercial enterprise, the spread of science, and the difficulties of competition. We ourselves are victims to utilitarianism, and must plead guilty to sharing in the universal want of sentiment, 'even when birds rejoice in leafy bowers, and bees hum round the breathing flowers'; or when 'within yon milk-white hawthorn bush, among her nestlings sits the thrush.' One is sometimes inclined to wonder if steam power and chemical manures. pedigree stock and iron fencing, weighbridges and milk registers, will ever compensate us for the loss of the fresh and simple country life of our forefathers. It is useless to repine and perhaps the best thing we can do is to cherish those pleasurable feelings with which we may still view the flock spread o'er the down, or listen to the varied tones of the sheep-bell; and to cultivate more of personal interest and affection for our domesticated creatures. There is no doubt that the humble dairyman, the carter, and the shepherd, obtain more enjoyment from watching and tending their charges than do their masters; and the pleasures of farming might be greatly enhanced by devoting more personal attention to live stock, and studying their habits. Love of animals may be cultivated, and with it comes an interest in the creatures which surround us.

"A few beans in the pocket for the horses, a few pets among the sheep, or a handful of corn thrown to the poultry, soon beget love on both sides, and is not thrown away, even where profit is concerned. Interest and kindness on the part of the master insure and promote similar interest and kindness of the part of the servants, and help to form a good judgment as to the merits of the animals. A judge of dogs and horses must be really fond of

these animals, and unless a man is fond of cattle, sheep, and even pigs, he can hardly hope to excel, either as a manager or as a breeder of stock Individual characters only become apparent after long observation, and hence we recommend the cultivation of kindly feeling and real interest in the welfare of individual animals, as one way at least of preventing the merely commercial feeling from absorbing us too exclusively.

"In commencing a book on sheep, we urge the importance of real interest in the animals themselves. The shepherd, if worthy of his position, knows his flock individually, and it is absolutely necessary that he should so know his sheep if progress is to be made. This intimate knowledge can scarcely be expected of the master, but he should at least sympathise with his shepherd, and maintain such an interest in his sheep as to encourage him in his work. Frequent visits to the sheepfolds, and talks with the shepherd as to the well-being of his charge, are in themselves interesting and also instructive to both parties. The knowledge possessed by the shepherd is of a different sort to that of the master, but both are equally useful, and the exchange of ideas is naturally beneficial."

In dealing with the medical treatment of sheep, the author alludes to the difficulties attending it. "The human doctor studies the idiosyncrasies of each patient; but when a veterinary surgeon is called in to a flock of sheep he is obliged to prescribe generally, and the constitutional differences of individuals must tend to render the results of his treatment conflicting and unreliable." Professor Axe has contributed to the chapter on the diseases of sheep in his usual lucid and practical way, and has thus made the excellent little book more complete and useful. It is well got up, and there are a number of good illustrations of the different breeds of sheep, which enhance its value, while the low price at which it is published (three shillings and sixpence) brings it within the reach of everyone interested in mutton and wool.

THE BOVINE PRESCRIBER. By J. B. and A. GRESSWELL. Second edition, revised and enlarged by GEORGE GRESSWELL, M.A., L.R.C.P., etc. (London: Baillière, Tindall and Cox, 1894.)

This handy little work was first published in 1886, for the use of veterinary practitioners and students, and a new edition has now been issued, showing that it has met a demand and done its duty. The book has been overhauled by Mr. George Gresswell, who has improved and enlarged it, and by doing so has made it more acceptable to those for whom it was intended. The arrangement is the best for immediate reference, and the details are apparently carefully elaborated. We cannot discover anything of importance omitted, though, here and there, some of the items are not quite up to date. For instance, the local treatment of actinomycosis is given, but no mention is made of the general treatment by potassium iodide, which is so very successful, and will cure the disease even without local applications—a matter of great importance, especially when the affected parts are not accessible to the hand or instrument. But the "Bovine Prescriber" must be considered a most useful handbook for the busy practitioner, who cannot carry in his head all the knowledge he requires, and has to refer to convenient guides like the present for immediate information.

A MANUAL OF GENERAL HISTOLOGY. By W. S. GOTTHEIL, M.D. (New York: Sabiston, Murray and Co. 1894.)

In the compass of about one hundred and forty pages, Dr. Gottheil, Professor of Pathology in the American Veterinary College, New York, and physician to the Lebanon hospital in the same city, has contrived to place the leading facts in histology in what he terms "an accessible and simple form," for the acquirement of beginners. From his experience in teaching, the author

has been made aware of the necessity for excluding theories and moot points, and of reducing the explanations of the structure of the body to their simplest possible terms; so that his book is more or less elementary and easily comprehended. To the student it will be found convenient as a primer, and if he masters its contents he will be prepared to go on with more advanced treatises on this subject and on physiology. The descriptions are brief and clear, and they are supplemented by nearly seventy good woodcuts.

SEMIOLOGIE, DIAGNOSTIQUE ET TRAITEMENT DES MALADIES DES ANIMAUX DOMESTIQUES (SEMIOLOGY, DIAGNOSIS AND TREATMENT OF THE DISEASES OF THE DOMESTIC ANIMALS.) By C. CADEAC, Clinical Professor at the Lyons Veterinary School. (Paris: J. B. Baillière et Fils. 1894.)

This is the second volume of the Encyclopédie Vétérinaire which Professor Cadeac has set himself the task of producing. The first one, which we had the pleasure of noticing not long ago, dealt with etiology and general pathological anatomy in a somewhat original manner, and was in every way an excellent production. The volume now issued is the first of two devoted to the study of the means of diagnosing disease—such as inspection, palpation, cultures, test inoculations— and the exploration of the digestive, respiratory, and circulatory apparatuses (included in this volume), examination of the other organs, and the diagnosis, prognosis, and treatment of disease (reserved for the next volume). The book is entirely from the pen of Cadeac, and is in all respects equal, if not superior, to its predecessor. At any rate it is more worthy the attention of veterinary practitioners, as it treats of subjects which come under their notice daily, and with which they have to deal in the course of their avocation, as well as those bacteriological, chemical, and other investigations that they may at times have to undertake, or at least of which they should have a fairly competent knowledge. The most recent methods of pursuing these investigations are fully described in a lucid and precise manner in the preliminary observations on the methods and procedures employed in the recognition and study of symptoms and diseases, which embrace a large amount of most valuable information. Chapter I. includes the digestive apparatus, and the semiology of each organ in each species of animal is treated in a most interesting fashion, more especially the portion devoted to the liver. In Chapter II., the respiratory apparatus receives a large share of notice in everything pertaining to auscultation, percussion, disturbance in the breathing, etc., while in Chapter III. we have a study of the blood, and the cardiac, arterial, capillary, venous, and lymphatic circulations in their pathological aspects—the alterations in the normal and the abnormal sounds of the heart, modifications in the pulse with regard to rhythm, quality, and frequency, being fully discussed in all their bearings. We know of no work in veterinary medicine to come near this in originality of plan, lucidity in treatment, or scientific comprehensiveness, and it certainly confers on this branch of the veterinary surgeon's study a very advanced position in scientific medicine. The illustrations, sixty-seven in number, are well calculated to explain that which words could not so well express or show. Altogether, we are delighted with the book, and feel certain that those who make themselves acquainted with its contents will feel equally pleased and join with us in cordial thanks to the author.

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# Parliamentary Intelligence.

HOUSE OF COMMONS, March 13th.

## THE SWINE FEVER ACT.

In answer to COLONEL NOLAN,

Mr. J. MORLEY said,—No part of the money now paid for the slaughter of pigs under the Swine Fever Act falls on the ratepayer. The entire expense is

paid out of the cattle pleuro-pneumonia account from moneys provided by Parliament. Local funds will not be called upon to bear any portion of the cost, unless in any future financial year the money standing to the credit of the cattle pleuro-pneumonia account, including the proceeds of the sales of carcases, is insufficient to defray the expenses.

March 22nd.

CANADA AND PLEURO-PNEUMONIA.

Dr. FARQUHARSON asked the President of the Board of Agriculture whether the Colonial Department had communicated to him the representations of the Canadian Government as to the freedom of the Dominion of Canada from pleuro-pneumonia in cattle; and, if so, whether he would issue an order forthwith allowing cattle from Canadian ports to be landed without being subject to slaughter or quarantine.

Mr. GARDNER: I received the papers to which my hon. friend refers on Friday last, and I am giving my most careful consideration to the representations by the Canadian Government which are contained therein. There are, however, one or two matters still upon which I wish to receive information from the Dominion authorities, and until this is available I shall not be able to say definitely what course it will be my duty to take in the matter. I quite recognise, however, the desirability of my decision being made known at an early date, and I have written to the Colonial Office to ask that I may receive the information in question as speedily as possible.

## Army Veterinary Department.

*Gazette*, February 27th.

Veterinary-Lieut.-Colonel W. B. Walters, F.R.C.V.S., is placed on retired pay.

Veterinary-Major C. Phillips, F.R.C.V.S., to be Veterinary Lieut.-Colonel, *vice* W. B. Walters, F.R.C.V.S. F. S. H. Baldrey, Gent., to be Veterinary-Lieutenant, in succession to Veterinary Lieut.-Colonel W. B. Walters, F.R.C.V.S.

*Gazette*, March 6th.

Veterinary-Major M. F. Healy is placed on retired pay.

*Gazette*, March 13th.

F. W. Wilson, gent., to be Veterinary-Lieutenant in succession to Veterinary-Major M. F. Healy, retired.

At a levée held at St. James's Palace, on March 13th, by His Royal Highness the Duke of York, the following Veterinary Officers were presented by the Director-General of the Department; Veterinary-Major S. Longhurst on promotion, Veterinary-Lieutenants C. B. Freeman, H. C. Harris, W. A. McDougall, A. E. Richardson, W. R. Walker.

## Obituary.

THE following deaths of members of the profession have been reported since our last issue:—

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| John Broderick, M.R.C.V.S., London .. .. | graduated | 1834 |
| W. H. A. Verney, M.R.C.V.S., Stow-on-the-Wold | ,, | 1864 |
| W. M. Martin, M.R.C.V.S., London .. .. | ,, | 1873 |
| R. Cowan, M.R.C.V.S., Newport, Salop .. .. | ,, | 1877 |
| A. Harris, M.R.C.V.S., Bognor .. .. .. | ,, | 1880 |

Mr. Farrow, M.R.C.V.S., London, who graduated in 1865, died on March 17th of typhoid fever.

As we go to press we learn with much pain of the sad death of Mr. T. H. Merrick, F.R.C.V.S., Northampton, who succumbed on March 19th to an overdose of chloral, taken by himself to induce sleep. Many members of the profession will share with us in the feeling of regret we experience at the loss of such a genial and enthusiastic colleague. Mr. Merrick graduated in 1874, and spent some time subsequently in South Africa, serving, if we are not mistaken, in a local cavalry corps there during one of the campaigns so frequent of recent years in that country. Returning to England he resumed practice with his father in Northampton, and in 1891 became a Fellow. Last year he was elected President of the Midland Counties Veterinary Medical Association. Our deep sympathy is tendered to his father, Mr. T. J. Merrick, in the heavy bereavement he has sustained.

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# Jurisprudence.

HIGH COURT OF JUSTICE, LONDON.
*March 11th.*

(Before Mr. JUSTICE HAWKINS and a Special Jury.)

SMITH *v.* REYNOLDS.

This was an action to recover £200 damages for the loss of a mare, which, it was alleged by the plaintiff, was killed at the defendant's forge, owing to the negligence of the defendant's servants. The defendant pleaded that the loss of the mare was caused by her own vice.

Mr. M'Call, Q.C., and Mr. Upjohn appeared for the plaintiff; Mr. Kemp, Q.C., and Mr. Gregson Ellis for the defendant.

The plaintiff is a horse dealer carrying on business in Little Cadogan-place, Chelsea, and the defendant is a veterinary surgeon and farrier in Clarges-street, Piccadilly. The mare in question was a chestnut, bred in Norfolk, and purchased by the plaintiff for £150. She had been regularly exercised and showed no sign of vice, and had been in the plaintiff's possession about three months on the 3rd of June, 1892. On that day she was sent down to the defendant's forge to be shod about 6.30 a.m. About 9 word was brought up to the plaintiff that an accident had happened to the mare, and his foreman, on going down to the forge, found her lying on her off side. There was great sweating. The mare died the same morning. The *post-mortem* examination showed that the neck was dislocated and the atlas bone fractured, and there was extravasation of blood upon the brain. This, it was contended on behalf of the plaintiff, showed that the injury had been inflicted before death, and it was suggested that the mare had been violently struck on the head by one of the farriers with his hammer, which had fractured the wing of the atlas, and that upon being struck she had thrown up her head, and so dislocated the neck. For the defendant it was suggested that the mare was "green," and on being fastened up by a halter to be shod had "hung back," and then, feeling herself checked by the halter, had jumped forward, striking her head against the wall, stunning herself, and falling with a jerk upon the halter, and so causing the dislocation of the neck. Another suggestion to account for the latter symptom was that it had been caused after death by the chain put round the mare's neck to drag her body into the horse slaughterer's cart. This was the second trial of the action, the jury having been unable to agree on the former occasion. For the plaintiff a large number of witnesses, including several eminent veterinary surgeons, were called, who deposed that the injuries sustained must have been caused before death, and that the suggestions put forward by the defence were impossible. For the defendant the three men engaged in the forge were called, who swore positively that the mare never was struck with a hammer on the head at all, but that she caused

the injurie sby "hanging back" and then striking her head against the wall Several veterinary surgeons were also called, who spoke to similar accidents having occurred in their experience. The case began on March 8th, occupied the whole of that and the following day, and was only concluded on the 11th.

The learned Judge, in summing up the case to the jury, said that the question for them, as defined by the particulars, was, "Was the man who was engaged in shoeing the mare guilty of cruel brutality by striking her on the head with a hammer?" It was for the plaintiff to prove this to the satisfaction of the jury, and mere suggestions would not be sufficient. His Lordship commented severely on the fact that, although this piece of brutality was alleged to have been perpetrated in June, the defendant never had any notice of what was suggested against him until the following January. It was a circumstance which the jury were very well entitled to take into their consideration, although it did not of course destroy the cause of action if it existed. It was agreed by both sides that the breaking of the atlas bone was not the cause of death, but the plaintiff's veterinary surgeon suggested that, being struck with the hammer, she had tossed up her head, and in doing so had dislocated her neck. His own experience of horses was very small, but, slight as it was, the suggestion surprised him. His Lordship then went very carefully through the evidence, pointing out that, unless the defendant's men had committed deliberate and wilful perjury as to what took place, the death of the mare was accounted for in a way which absolved the defendant from all blame. The real question was, "Did the mare meet her death by a cruel act of violence?"

The jury returned a verdict for the defendant.

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## Proceedings of Veterinary Medical Societies, etc.

### CENTRAL VETERINARY MEDICAL SOCIETY.

(*Continued from page* 208.)

*Discussion on Firing.*

Mr. H. EDGAR said if he were in order—having spoken on the previous occasion—there were just a few remarks he should like to make in regard to the theory of firing. He denied that firing was to any great extent of use in veterinary surgery as a counter-irritant, if the term "counter-irritant" was employed in the ordinary sense of the term. He considered that the illustrations adduced by Professors Macqueen and Penberthy about the kidney and pleuritic adhesions supplying a counter-irritant did not apply to firing, because they fired directly on the part affected, and they did not fire one point to derive some benefit at another and a distant point. His idea of the firing theory was that by it they brought about an irritation which induced a certain amount of blood to the part; that there was first a contraction and then a dilatation of the vessels, and this brought more blood to the part. Thus he believed they assisted nature in her work of restoration very materially—they considerably hastened the process of restoration. Where they derived benefit in cases of bony deposit was where by point firing into the bone they got an irritation set up directly; and he thought it acted unquestionably as a bandage of a temporary, if not of a permanent character. Cases of thorough-pin, he thought, strongly proved this, and when they remembered the elastic power and condition of the skin, and when they fired and produced those lines or marks on the skin, they were bound to destroy that elasticity. He questioned very much whether the original amount of elasticity was ever restored to the skin. If not it seemed to him that a temporary if not a permanent bandage was thus induced. His theory

appeared to him to be more feasible than that of a counter-irritant, which he could not personally accept. Of course, in the human subject, they had firing down the back for spinal lesions, but in no single case had he heard of any beneficial result from this process. As to chloroforming horses before they were fired, Mr. Edgar held that firing was the one operation of all others in which chloroform should be used. Of course, if it was used, that would render impossible the firing of a horse while it stood. In firing a horse, the pain inflicted was just during the operation, and if before performing it they reduced the animal to a state of anæsthesia, they would do away with all cruelty in the matter. He was much interested in what Col. Duck had told them about needle firing, which still further went to confirm his (Mr. Edgar's) idea as to firing acting as a direct irritant. He thanked Col. Duck for bringing this subject of needle firing under their notice, and at the first favourable opportunity he should try that process in preference to the old-fashioned method.

Mr. J. S. HURNDALL said he did not think that he could at all add to the usefulness of that discussion, but, at the same time, he desired to show that personally he appreciated the pains which Professor Pritchard had taken in bringing this interesting subject of firing before the society. The interesting portion of the professor's address unquestionably was that which bore upon the utility of firing. He (Mr. Hurndall) had always felt that it was a matter which deserved their careful consideration, as to what were the cases in which they should subject a horse to the pain of the operation of firing; because he did not think that they as veterinary surgeons, as members of a profession who were credited, at all events, from their own standpoint with a desire to alleviate suffering, were warranted in inflicting pain unless there was some real, substantial benefit to be derived from the same. Merely to operate because it was a customary thing to do, did not seem to him to justify them in subjecting an animal to the pain which the operation of firing must cause. He had endeavoured, so far as he could do so, to determine in his own mind what occasions warranted him in operating with the actual cautery, and he was hoping when Prof. Pritchard introduced this subject that he would have explained—explained at all events more fully than he did—in what way the cautery acted therapeutically, if he might apply the word. He did not know whether he was right at all, but he had formed this conclusion; that the actual cautery in its influence seemed to have a direct action upon fibrous tissue, and he fancied that it set up an inflammatory process in that tissue. As Mr. Edgar had already said, when they fired in cases of lameness, they operated on the part affected. Although they applied the cautery to the skin, still the parts that were affected, and which they required to be influenced by the treatment, were those which were in direct conjunction with the skin, namely the tendons, ligaments, the periosteum, and so on. The cases which had proved most successful under his own treatment where he had adopted the actual cautery, had been those where he assumed the aim to be a relaxed condition of the fibrous tissue, such an articular ligament for instance, as they got in the ordinary overshot joint. Otherwise one bone could not protrude to any extent over the other. Those were the instances in which he had found firing most useful. He had in mind then a mare, belonging to a medical man, that worked very hard upon the stones in London, and was over very considerably on the off-fetlock joint of both fore and hind legs. The owner of the mare had a very strong objection to subjecting his animal to any operation involving pain, if this could possibly be avoided. He (Mr. Hurndall) told him that, to the best of his belief, there was nothing better than light firing for that condition and he consented to his operating upon the mare. He began with the fore legs, and after a fortnight's interval operated upon the hind legs. The mare had, he

believed, about six weeks' rest, after which she came up with the legs perfectly straight in the joints, and she had gone on working—working soundly—ever since. He thought that that was hardly rest enough to account for what Mr. Caton wished to impress upon them as the probable result of firing. He referred to the possibility of rest being the chief thing. Unless something was due to the application of the actual cautery, how was it that those ligaments became contracted again so as to put the joint in its proper position : was it that the inflammatory process was conveyed to those ligaments and then the shortening process ensued, or how was it that the firing acted ? (Mr. Caton : By the removal of exciting cause). But if they had a ligament that extended beyond its natural position, there must be some cause to account for its contraction again. (Mr. Caton : Rest). Well, they might say it was rest. He did not wish to be thought that he was advancing any theories in a dogmatic fashion—he was merely illustrating what he thonght was the action of the cautery. Professor Pritchard had brought this matter before them with a desire to prove that there were advantages derivable from firing, but they required to discriminate in these cases where the advantages were to be gained, and where they might operate and secure absolutely no benefit. Mr. Edgar's experience was that firing was no good in the case of sprained tendons. Well, they all differed in their experiences. He had had experience where it was pretty clear to him that the tendons had been affected by firing. He had recently fired and found the same good results come. He took it that this was the same condition of things as with the ligament to which he had already referred. The tendons were sprained, and with the application of the cautery the relaxed condition was overcome, the tendons assumed their normal state, and the horse was able to go on and perform its work in a sound manner. These were a few points which seemed to him worthy of consideration. He was a strong opponent of causing pain to any animal when it could possibly be avoided ; and he was glad to have the opportunity of confirming Mr. Edgar's view that all cases of firing should be performed under an anæsthetic. He did not think they were warranted in subjecting their patients to such severe pain unnecessarily. He did not go so far with Mr. Edgar as to assert that the most pain was inflicted during the operation. He thought if Mr. Edgar allowed someone to operate upon him with a firing-iron, he would probably find that the pain continued rather longer than just during the operation. Though there was not that constant irritating condition of things which was subsequent upon the application of the ordinary blister, which continued for a longer time, yet he could not but think that the results of the application of the actual cautery continued for some considerable period, and that the pain was quite sufficient for the horse to bear without the more acute pain caused during the operation itself. He hoped that his friends in the profession would take this matter of the administration of an anæsthetic prior to the operation of the firing into their consideration, because as he ventured to point out in a letter to *The Veterinary Record*, now was the time, if ever, when they should stand upon their dignity with regard to the humane treatment of animals. He thought that the time had arrived when they should tackle the Royal Society for the Prevention of Cruelty to Animals, and when they should show that they were not to be sat upon by any stipendiary magistrate in London or elsewhere. They deserved, he was quite certain, from their intentions, the name of a humane profession, but he was sorry to say they had not got it. They had incurred in a great measure the reproach which was cast upon them simply because they performed a number of operations upon their patients without availing themselves of the means provided for performing those operations in a painless manner, or at all events freeing their patients from pain during the time of the operation.

Professor MACQUEEN said with regard to Mr. Caton's idea that the thermo-cautery was a rather expensive instrument, it was true that as much as six guineas might be paid for one, but, on the other hand, an instrument which would do the required work quite as well might be had for 30s. The latter was made in Germany, but it was no worse for that. The cheaper instrument could be obtained from a firm of instrument makers in Berlin. So far as expense was concerned, therefore, no one need be debarred from using the thermo-cautery if they preferred that to any other instrument. Another instrument mentioned by Colonel Duck at the previous meeting was the needle firing-iron. There were several needle firing-irons. The needle firing-iron to which Colonel Duck referred was rather complicated in some of its works by a spring. There was another needle firing-iron in which the needle, attached to a rod like an ordinary firing-iron, was not unlike an ordinary knitting-needle. Although needle firing was not at all uncommon now, yet he could not say that the instrument to which Colonel Duck alluded was very much used in this country. He owned that he had not seen an instrument of the kind. Then with regard to the depth of firing—but that warned him, from the report of the previous meeting, one should be very careful in making any remarks, because if one did not touch upon every point, he possibly got credit for refraining from alluding to some points. As needle firing and pyro-puncture or deep firing was not alluded to by every speaker at the preceding meeting, there seemed an inclination to believe that that form of firing was somewhat rare. He could name a dozen gentlemen in the profession who practised deep firing for bony enlargements, and he thought the knowledge of this mode of firing was so common that it was hardly worth mentioning. When he referred to line firing and pyro-puncture, and so on, he was alluding to ordinary firing, not for bony enlargements especially. Then Mr. Caton, in his references that evening to side-bone, asked whether he (Professor Macqueen) believed, or said he believed, that side-bone seldom caused lameness. Show me (continued the speaker) a case of uncomplicated side-bone, and let me see the horse that is lame. I have seen thousands of horses said to be lame from side-bone, but I never yet saw the horse lame from so-called side-bone in which there was not a complication. You will find that where there is permanent side-bone there is also disease of the small bone. Then with regard to firing sandcrack, if you refer to the report of the remarks I made, you will find that I simply said that the sandcrack might be fired parallel to the crack or across the crack—it is a matter of small moment which. I adhere to that statement. It is a matter of no importance whether you fire sandcrack across or parallel to it, so long as you remove the bearing of the hoof from the shoe beneath. Now we come to the statement that firing is not a counter-irritant. When I alluded to the remarks of Mr. Hunting—who is not here this evening—I did not pretend to supply a theory for the action of the actual cautery. I simply adverted to the careless way or careless tone assumed by Mr. Hunting with regard to the action of the actual cautery. I said I was surprised that Mr. Hunting was not better acquainted with the therapeutics of counter-irritation, but I never meant to imply or convey that firing acts in the same way as a blister to the chest or to the loins. That was not my meaning. As a matter of fact, I do not believe that the firing-iron or a blister applied to the skin affects deep-seated tissues at all. I do not think there is any change at all produced deeper than possibly half-an-inch from the seat of the firing. If you refer to the latest edition of Finlay Dun's *Veterinary Medicine* you will find recorded five experiments performed by Professor McCall in 1891 to illustrate his contention in regard to the operation of blisters. In none of these cases to which blistering or firing was applied was the slightest change in the sub-cutaneous tissue observable by the naked eye. I am sorry to say that I am

not able to supply any theory as to the action of the firing-iron. Nor is this to be wondered at, considering the number of lights that have shone and gradually disappear without furnishing any information on the subject. But I do think that, while one may not be able to supply a possible explanation of the action of the firing-iron, one cannot shut one's eyes to the fact that it is a form of treatment which is attended with very great benefit to our patients, and when anyone says he believes that in many cases the same good result will accrue from prolonged rest, I say that I do not believe anything of the kind. If you have a horse with a severe sprain of the flexor tendons you may rest him until he dies, and you will never improve his condition. But if you put the same horse under the operation of the firing iron and give him the ordinary treatment, you will find that you will benefit that horse, and though you may not succeed in benefitting him permanently, you will benefit him to the extent that he will be able to do light work. Now with regard to chloroform; at the risk of perpetuating damage to the humane individuals in the profession and those outside the profession, I object to chloroforming horses before I fire them. I do so for the reason that chloroform has only a temporary action, and that the chief suffering follows the application of the firing-iron. I do so for another reason, and I shall maintain the position, I hope, as long as I live; I shall not allow myself to be dictated to by any outside body as to how I shall conduct my profession. That is my standing in connection with chloroform. Allow me to employ chloroform if I choose, but do not let the Anti-Vivisection Society tell me when I am to do it. Then as to pain under the operation of the firing-iron, I maintain that a horse can be fired without a twitch, without a blind, without a foot being raised, and if that is a painful operation, then there is none in our profession which is less painful. I say I cannot do it in every case, but I will undertake to fire a horse without a twitch, without a blind, or without any restraint, and that is by gradually firing. It takes a longer time to do it, but it can be done. I don't say it can be done in every case, but in many cases a horse can be effectually fired by taking time and going over the lines again and again. You will thus be able to fire a horse without causing the horse very much disturbance.

Professor PRITCHARD, in reply, said: I may remind you that in the opening remarks I made with reference to this subject, I brought under your notice several theories that had been advanced by the lights of the profession years ago, and I endeavoured to lay down what I considered was the action of the firing-iron. That I thoroughly failed in conveying my views in the matter I have not the slightest possible doubt, because nearly every speaker who has said anything about this aspect of the subject has declared that I advanced nothing in the shape of a theory. I have really not read the report since it appeared in *The Veterinary Record* as to what I said on this point, but I do know this, and shall be able to recall it to the minds of you: I said that one theory was that the application of the firing-iron acted as a permanent bandage, another theory was that it acted only as a temporary bandage, and a third theory was that it acted as a counter-irritant. And I went on to say that in my opinion if there was any bandage at all as the result of firing, I held that it was only a temporary bandage. I regarded it as producing an amount of deep-seated inflammatory action that no other application to the skin could possibly have. I recollect, too, that I qualified my statement directly afterwards by saying that perhaps the introduction of seton would have the same effect, but that was not applied to the outside of the skin but passed beneath it. Beyond that I do not pretend to go. I do not believe that there is any particular charm or magic in the action of the firing-iron. I repeat what I said at our last meeting: That it produces an amount of deep-seated inflammatory action that no other outward application to the skin seems to be able

to bring about. Take an instance. I do not think that many of us would hesitate to fire a horse in his hocks if we found him to be suffering from articular spavin. Why do we fire him? Blister him if you like, but unless you fire him or introduce setons under the skin and set up a deep inflammatory action you will not bring about the effect desired. You will not cure that horse of his lameness unless you bring about an anchylosed condition of the bone affected by that particular disease. And firing will do that. You may not thus succeed in every case—perhaps not in the majority of cases—but firing is one of the best methods of producing the condition I have mentioned—indeed, with the exception of setons I know of no other method. In reply to this one of the speakers asked "How is the deep-seated inflammatory action going to work in the case of thoroughpin?" Well, I believe in firing for thoroughpin, and I assert now, as I did before, that there are numbers of cases of thoroughpin where ordinary blistering will absolutely have the effect of increasing the size of the thoroughpin, whereas the firing-iron will get rid of it. I believe in that case such an amount of inflammatory action is set up in the internal membrane of the sac as to rob it of vitality, destroy its capability, and by destroying some deposit already thrown out, it becomes absorbed and the enlargement disappears. That is a theory only, and I advance it for you to take it for what it is worth. If, however, that theory be correct, or has even the semblance of correctness, then we can understand why by setting up a deep-seated inflammation the firing-iron succeeds when the ordinary counter-irritant—in blistering—will not. I do not care to make any remarks as to what Mr. Hunting said about resting, and that if animals suffering from splint, spavin or anything else, were not fired and had rest enough the probability is they would get well without being fired at all. I feel that in this Mr. Hunting was merely joking, and that if a horse were brought to him for treatment he would hardly give this advice. I am certain that there are plenty of cases of splint, spavin, ring-bone, sprained tendons—all the maladies connected with a horse's lameness—which would not have got well at all without treatment; and scores of cases in which recovery has been hastened by treatment; and the saving of time is an important factor in this matter, because we must remember that people do not, as a rule, merely keep horses to look at. If we only accelerate recovery by our treatment I think we are certainly justified in subjecting our patients to a certain amount of pain, and in making practical use of the knowledge we possess.

I think Professor Penberthy said that he did not believe there was any deposition beneath the skin as a consequence of firing. I have examined a great many fired legs and I never came across one—particularly if so-called firing had been carried out—where the subcutaneous tissue was not in a more dense condition than under an ordinary piece of skin which had not been fired, and I am at a loss to understand how this greater density could be unless some deposition had occurred.

I think Professor Penberthy was one of those who committed himself to the statement that sidebone seldom produced lameness, and my friend (Prof. Macqueen), has given us a repetition of his opinion, but I cannot help being struck at the rather Gladstonian manner—if I may use that phrase—in which he tried to back out that statement. To-night he says "not complicated with anything else." I would put to him this question: does the complication that he finds appear simultaneously with the sidebone, before the sidebone, or is it a result of the presence of the sidebone? Because if sidebone *per se* is not the producer of the mischief, then all our notions of firing horses with sidebone are wrong. My experience has been—and I think it is the experience of most veterinary surgeons—that if you find a horse with sidebone with a good strong hoof, high heels, and a foot rather inclined to be narrow—by which I do not mean contracted heels—the probability is that he will go

on through life and do work without showing any lameness. Take a horse with flat feet—flat soles, and low heels, and with sidebone; then you will find in nine cases out of ten that the animal will become lame; and if subsequently the animal grows to be ten or twelve years old, and you find your complications, I think I am quite justified in saying that those complications are rather the result of the presence of sidebone than that they precede it or appear simultaneously with it.

There are many other points brought into this discussion as to which, to be candid, I do not think I have been convinced that I am wrong. I said it was ridiculous to be guided by the colour of the line as to the depth of the firing. I have fired some hundreds of horses, and I have never been able to come to any other conclusion that the colour of the line does not depend upon the depth burnt, but upon the heat of the iron used. If the iron be absolutely of white heat, you will not get that brown colour which has been mentioned, however deep you may go, while, on the other hand, if you have an iron almost too cold to use, then you will get a brown colour almost as soon as you have made a mark. I cannot come to any other conclusion on this matter.

Nor can I alter my opinion as to what I said about the thermo-cautery. I think it is a beautiful instrument, and I shall never think of using any other so long as I have a thermo-cautery that will work. It will fire as deeply as you want to go—quite as deeply as an ordinary iron.

Perhaps I should have said a little more about the preparation of horses for the operation of firing. I should never think, myself, of firing a horse without first preparing it. I should say there is no necessity to prepare a cross-bred horse, a cart horse properly fed upon sufficient corn for the work it has to perform, as a hunter or racehorse just out of training should be prepared. I do not go any further than that. I should be sorry to have to fire the hocks or fore-legs of a thoroughbred horse for sprained tendon without first submitting him to an amount of preparation. It is possible, if not probable, that 75 per cent. of such horses would not come to any grief, but if in the case of only one animal out of a hundred, an animal worth two or three hundred guineas, perhaps there were great pieces of skin sloughing out, it would be a very awkward thing indeed for the practitioner. It would be nothing out of your pocket to keep him ten days longer than you would otherwise do, in order to prepare him for the operation. If you prepare him, as I think you should do, you would get rid of any possible mischief following firing. With regard to tying horses up, almost the same remarks apply. There are plenty of horses you might fire and turn out directly afterwards, and they would not touch their legs. On the other hand, there are plenty of horses that you might tie up four or five days, which would interfere with their legs, and bring about a blemish that might be avoided. Cradles, I know, are useful in some instances, but in other cases you might as well put the cradle on a stall post as on a horse's neck.

With respect to so-called "sprained tendon," I believe that in the great majority of so-called cases of "sprained tendon" there is nothing more involved than the synovial membrane in connection with the tendon, and there deep-seated inflammation comes in again. I have examined microscopically a number of so-called "sprained tendons" and I got the late Mr. Coghill to make sections, and we have been unable to find anything else than this membrane affected, and we never failed to find that the deposition has been round the tendon and has involved to a considerable extent, if not entirely, the membrane connected with the tendon. I believe that in bringing about the recovery of an animal, when that animal has to win a race, it is due to our having obliterated almost entirely the synovial membrane. There deep-seated inflammation comes in again as the result of firing where blistering is no good.

I was very much interested in the remarks which Colonel Duck made about needle firing, and I had some conversation with him on this subject before he addressed the meeting. I should like to see the operation. I can readily understand that needle firing may be of much advantage and produced beneficial effects that no other kind of operation would.

With respect to the use of anæsthetics, I may say that I am not a great advocate for the employment of chloroform in the case of a horse, however well that anæsthetic may be administered. I have seen over and over again horses ill for twenty-four, and even forty-eight hours, consequent upon the amount of chloroform it was necessary to get into the circulation in order to produce the condition required. In many cases, too, more time is needed in the administration than is requisite to perform the operation itself. Often the horses fight against the taking of chloroform, and it produces an amount of inconvenience to the animal that is, I think, absolutely cruel. There is not much humanity, in my opinion, in administering chloroform to horses for a minor operation like firing. I only know of a few instances in which I should have recourse to chloroform, whether for firing or anything else.

I do not know whether I have thought of everything which calls for a reply from me. I hope I have replied to most of the arguments advanced; and, as I said at the conclusion of my remarks in bringing this subject before you, I was much obliged for the patient hearing you accorded me, so now I thank you for the way in which you have listened to my reply, and for the manner in which you have taken up the discussion and combatted the arguments I advanced where you saw occasion to differ from the views I expressed.

Mr. F. W. WRAGG: I move a cordial vote of thanks to Professor Pritchard for the able address he has been kind enough to give us. It has produced a very good discussion, which must be very gratifying to you, Mr. President, as I am sure it has been to all the members.

Mr. CATON: I beg to second the motion.

The motion having been adopted unanimously,

Professor PRITCHARD said: I am very much obliged to you for the manner in which you have received my effort to entertain you, and for the way in which you have discussed the subject. I assure you it is only for want of time that I do not more frequently introduce subjects for the consideration of the Fellows of this Society. It is always a pleasure for me to do so.

Mr. ROWE, in moving a vote of thanks to Mr. Edgar and Mr. Garry for the interesting pathological specimens they had submitted to the meeting, said that such specimens were always welcome, and had frequently furnished matter for useful discussion.

Professor PRITCHARD, in seconding the motion, said that the production of such specimens often gave rise to an amount of thought and discussion which enabled members to carry away with them useful information that they might not, perhaps, otherwise obtain.

The motion was passed *nem. con.* and acknowledged by Mr. Edgar.

In deference to the expressed wish of the meeting, and having regard to the hour reached, Mr. A. L. Butters deferred the reading of his paper on the "Intestinal Calculi of the Horse" until the next meeting of the Society, promising meanwhile, if possible, to revise his paper for printing, so that a copy of it might be in the hands of members by the February assembly.

Thanks to the chairman concluded the proceedings.

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The usual monthly meeting of the society was held on February 1st, at the Royal College of Veterinary Surgeons. Mr. A. Prudames, the president, occupied the chair, and the other Fellows present were:—H. Boyson Arnald, A. L. Butters, R. Butler, A.V.D., F. J. K. Bruce, F. Duck, A.V.D., H. Edgar, W. H. Farrow, B. Glover, A.V.D., T. C. Garry, J. S. Hurndall, F. K. Kendall,

Prof. Macqueen, F. C. Mahon, Hon. Sec.; P. McOnie, Prof. J. Penberthy, H G. Rogers, W. Rowe, Hon. Treas.; J. E. Rickards, W. Roots, A. Rogerson, F. G. Samson, W. Stapley, H. Singleton, F. Wragg, Fitzwilliam Wright, W. Willis, F. W. Willett, J. Woodger. Also the following visitors:—W. H. Williamson, A. P. Calastreme, Morgan-Evans.

The Hon. Sec. (Mr. F. C. Mahon) announced that he had received letters expressive of regret at their inability to attend from Mr. W. F. Barrett, Professor T. Walley (Edinburgh) and Mr. J. Roalfe Cox, and telegrams apologising for absence had come to hand from Mr. W. Hunting and Mr. C. Sheather.

Mr. J. E. Kitchin, of Manor Lodge, High Road, Upper Clapton, was elected a Fellow of the Society.

*Nominations.*

The following gentlemen were nominated for election as Fellows:—Messrs. C. H. Cordy, M.R.C.V.S., 382, City Road; S. L. Stephens, M.R.C.V.S., Royal Veterinary College, Camden Town; Craft, M.R.C.V.S., 24, London Street, Reading; T. Wooff, M.R.C.V.S., Greenwich; W. H. Williamson, M.R.C.V.S.; and P. Easte, M.R.C.V.S., 96, Gray's Inn Road.

*A Veterinarians' Defence Society.*

Mr. J. S. Hurndall said that at the previous meeting of that society an informal conversation took place with regard to the desirability of the veterinary profession having a strong defence society, so that they could thus mutually assist each other should occasion arise by reason of any adverse action on the part of their clients. He assumed that they were probably aware that there was in existence already a society in Manchester which had a two-fold character. It was a Benevolent Society which afforded aid to those who had been unfortunate in life, and it was also a Defence organisation for the protection of those of its members who got into difficulties in professional matters generally. The rule now was in this society that when the defence fund reached a maximum of £500, all further sums went to the benevolent account of the society. He believed, and his view was shared with several friends whom he had consulted on the subject, that a limit of £500 for defence purposes was wholly inadequate to the requirements of the case. There might arise, for instance, such costly litigation as that which had recently occurred in the still-pending case of Smith *v.* Reynolds, and it was felt that £500 was an insufficient sum to have available for protective purposes in connection with their profession. Before taking steps for starting a new society, if this should be found necessary, he suggested that it would be only courteous to learn from the Manchester Society whether, given a large increase of membership, that society was willing to alter its rules so as to admit of the indefinite augmentation of the defence fund, and the separation of its benevolent from its defence branch. In other words, they might be asked to create two distinct societies, one for benevolent objects, and the other for defence in professional difficulties, with option to veterinary surgeons to subscribe to either or both. Personally, he thought that from an interested point of view a defence society was even more desirable and necessary than a benevolent society. He was desirous of eliciting the views of the fellows of that society on this subject. He moved:—"That the Manchester Benevolent and Defence Society be asked whether it is prepared to consent to an alteration of its basis in the separation of the benevolent from the defence objects of the society, conditionally upon the accession of a large increase of members, and that the sum available for defence purposes should be unlimited."

Mr. F. G. Samson, in seconding the motion, said the Manchester Society

had now been in existence many years, and he was very much surprised—indeed he was almost disgusted—that the profession had not had the good sense to help themselves by joining that society. Out of the large number of veterinary surgeons in this country—be believed between 3,000 and 4,000—only 120 members belonged to the society. That fact spoke for itself. There was no doubt that combination for defence purposes was a desirable thing amongst veterinarians, as amongst the members of other professions, and he agreed in the propriety of first applying to the Manchester Society to ascertain whether they were prepared to modify their rules in the direction desired. At the same time he knew that the members of the Manchester Society held very strong conservative opinions. As he had said, that society had existed for many years, and if gentlemen in the profession had not the good sense to help themselves when they had the opportunity, they could not expect others to help them when they got into trouble. The subscription the Manchester Society required was only half-a-guinea per annum. Personally, he should prefer that it was two guineas. He could not account for the apathy of members of the profession in holding aloof from the Manchester Society.

Mr. HURNDALL: They have not known anything about it.

Mr. SAMSON: That is perfect nonsense. It must be known and has been known.

Mr. HURNDALL: Recently?

Mr. SAMSON: I will say this of the society: in two or three cases where, to my knowledge, members have appealed to it when they got into trouble, the society has rendered them every assistance and fought their cause gallantly and well.

Professor PENBERTHY said if this Manchester Society was not popular, probably the reason was that benevolence in the form in which it was distributed by the society and the defence undertaken by them, were scarcely compatible. But he doubted whether with subscribers who had subscribed for many years to the society because of its two-fold object, and with the money of many original members now dead, the society could now be altered in its formation and its aims. However, no harm could be done in ascertaining the views of the society. He quite thought that seeing defence was one thing and benevolence another and different thing, there should be two distinct societies in furtherance of those objects.

Mr. H. EDGAR said that although with respect to past payments it might not be possible to alter the application of the money subscribed, yet it might be feasible to adopt a rule directing that future subscriptions should be solely applied to one or other of the objects for which they were given: either benevolence or defence. Thus two separate and distinct funds or societies might be created. If the number of members to the defence society was doubled or trebled, the society instead of having one case to defend might have half-a-dozen on hand at the same time. In that event what would be the use of the £500 which was now the maximum limit for defensive purposes? He thought that the motion was a wise one: that they should first approach the existing society with a view of ascertaining (1) whether the two funds could be kept separate, and (2) whether given a large accession of new members, the sum available for defence purposes could be largely increased and made commensurate with possible requirements.

Mr. HURNDALL said that Mr. Samson had blamed the profession for not having joined the Manchester Society and, to a certain extent, he was disposed to agree with him. At the same time there was another side to the question, and he (Mr. Hurndall) could not allow that the profession was wholly to blame in this matter. Members of the Manchester Society had taken no steps whatever to increase their number. While he was in practice at Liverpool he was often seeing professional friends at Manchester, and he had opportunities

of hearing what was going on in the latter city. Mr. Samson might be surprised to learn that neither Mr. Morgan, Mr. Greaves, nor Mr. Taylor, who were prominent members of the society and whom he often met, ever once asked him to join the society. (Mr. Samson :—Why should they ?) Why should they ? Because in the first place they took an interest in the society. Had he been in their position in relation to the society he should have deemed it a moral duty on his part to solicit them to join. They never once broached the subject to him. It was not for Mr. Greaves to make a display of what he had done.

Professor PENBERTHY : He has invited people to join them.

Mr. HURNDALL : He may have done so, but he has not done so personally to my knowledge. And I maintain that we do not generally find gentlemen in our profession or in any other who are disposed to push themselves forward, and show eagerness to join a society without being asked to do so. Had I been asked to join I should have joined long ago. I have not joined up to the present time. It was a matter of delicacy with me. I did not care to push myself forward in the matter, and when I met month after month prominent members of the society who never once hinted that I should join, I wondered whether only a certain number of members were wanted, whether some were acceptable and others were not.

Professor PENBERTHY : Perhaps you are too sensitive, sir.

Mr. HURNDALL : May be I am ; we have all our faults, but I should not hesitate to say in Mr. Greaves' presence what I have said in his absence ; I do not mince matters with any man.

The CHAIRMAN suggested that before they sent the resolution to the Manchester Society it would be well to get a list of gentlemen—say 20, 30 or 50—who would signify their readiness to join the society in the event of its being altered as they desired. That would be something tangible. They might go even further and communicate with other kindred societies with a view of ascertaining whether they were prepared to support the Manchester organisation if the desired change was made. In this way, if the Manchester Society failed to meet their wishes they would secure, perhaps, the nucleus of a new society for defensive purposes which might be established on a wide and comprehensive basis. At the same time he did not think that the rules of the Manchester Society were like the laws of the Medes and Persians—unalterable. He was inclined to think that that society had the power of adaptation to the requirements of the times.

Mr. HURNDALL said he thought the suggestion of the chairman was a very happy one. Unless they could show the existing society that they were prepared to do something for it, they could hardly expect it to do something for them. Nor should they limit their action to their own society. He should be prepared to move as a subsequent resolution that the secretary communicate with the other veterinary societies to learn how far they were disposed to support an organisation based on the defensive principles desired. Personally, he would take care to bring this matter before the Royal Counties Veterinary Society at its next meeting. In this way they might get a hundred conditional promises. At present he believed that the Manchester Society worked entirely from that city, and that if a Londoner had a case in which he needed their assistance it was requisite for him to travel to Manchester.

Mr. SAMSON : Not always.

Mr. HURNDALL said, given a large accession of members in the south, it ought to be worth the while of the society to have a branch in London, from which affairs could be worked.

Mr. ROOTS : I quite agree with Mr. Hurndall that £500 is an inadequate sum for defence purposes. I do not see any objection to having a benevolent society tacked on to the defence society. If one does not need the aid of the

former so much the better. He will, at all events, have the consciousness of helping his unfortunate brethren.

Mr. EDGAR was of opinion that the two societies should be kept quite distinct and that it should be optional on the part of veterinary surgeons which they joined. They might join either or both.

Mr. HURNDALL: I think most men who would be likely to join both would be the least likely to want anything from either. Thus the funds of both would be strengthened.

Professor MACQUEEN said he was not prepared to join the Manchester Society if it remained as at present constituted. He was in favour of separating the two things—benevolence and defence. There were hundreds of gentlemen in the profession who were favourable to a benevolent society, but not to a conjoint society,—a society which sought to serve the double purpose of benevolence and defence. Notwithstanding the remarks of Mr. Samson, he did not think that their Manchester Society was well known. He did not think they had published their reports regularly, and he did not think he should be wrong in saying that it partook too much of a hole-and-corner character.

Mr. SAMSON: I rise to a point of order. The report of the society is printed yearly in the veterinary periodicals.

Professor MACQUEEN remarked that the proceedings of the society might be well known to its members and yet not to the outside public. If the Society was desirous of making new members it should advertise itself, and make its proceedings as public as possible. He did not think this old-established society would care to have any alteration made in its constitution and objects. That, however, should not hinder the veterinary profession from having both an independent benevolent and defence society of its own. There was great need for a benevolent society in connection with their profession. Hundreds in the profession at the present time required assistance, and the sooner a benevolent fund was started the better, with the view to future relief. To live in the veterinary profession to-day was more difficult than it was twenty years ago; and if by united efforts they could contribute towards the relief of those who were unfortunate, it was their duty to make that effort. If they could come to terms with the Manchester Society, let them do so. If not, let them have a society, independently of the Manchester Society.

Mr. HURNDALL: Although Professor Macqueen has confined his remarks to the formation of a benevolent society, yet I think he is equally desirous of having a defence society.

Professor Macqueen: Yes, separately.

The resolution was then put and carried unanimously.

On the motion of Mr. HURNDALL, seconded by Mr. H. EDGAR, another resolution was then similarly adopted which directed the secretary to communicate the substance of the previous resolution to the other veterinary societies of Great Britain and Ireland, and invite the expression of their views with respect to co-operation in support of the Manchester Society, conditionally upon its amendment in the direction indicated; or, failing this, as to the formation of another society for defensive purposes.

*(To be continued.)*

## NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE annual meeting of this association took place in February last, at the Hotel Metropole, Newcastle-on-Tyne. Mr. W. Ashton Hancock, president, in the chair. There were also present:—Professor McCall,

Messrs. J. B. Nisbet, Fence Houses; C. Stephenson, H. Hunter, A. J. Dalgleish, Newcastle; G. M. Mitchell, Sunderland; D. Macgregor, Bedlington; J. W. Rider, Beamish; J. P. Isherwood, Blyth; T. R. Jarvie, Gateshead; C. S. Hunting, South Hetton; J. W. T. Moore, Hedworth; J. Gofton, North Shields; A. Chivas, Corbridge; D. Macgregor, Newcastle; W. Hunter Newcastle; Veterinary-Major Durrant, G. R. Dudgeon, Sunderland; F. W. Wilson, Newcastle; and the secretary, Mr. F. T. Finney. Visitors: Professor Edgar, Messrs. P. Snaith, A. A. Stevens, F. A. Johnston, G. W. Lee, T. Lanchester, Dr. Henry E. Armstrong, H. H. Roberts, G. E. Gibson, James G. Deans, Dr. Clark Newton.

Letters of apology regretting inability to attend were announced from: Professors Walley, McFadyean, Cope, Duguid, Rutherford; Dr. G. R. Murray; and Messrs. G. Elphick and T. Greaves.

### *New Members.*

Messrs. Lanchester, of Bishop Auckland, and A. A. Stevens, of Durham, were nominated as members.

### *Honorary Associate.*

The PRESIDENT said they would all remember with pleasure the face of their old friend, Mr. Dudgeon, of Sunderland. He thought everybody would agree that Mr. Dudgeon had been one of the most useful and valuable members the society had had. He had been, so to speak, one of the pioneers of it. He had seen it carried through until it was one of the most influential and successful associations they had in the country. He (the president) had great pleasure in proposing that Mr. Dudgeon, of Sunderland, be an honorary associate of the association. He had received from Mr. Dudgeon a letter in which he said he really felt he must resign his membership of the association, as he could not come to the meetings.

Mr. J. B. NISBET seconded the proposition.

Mr. J. W. T. MOORE supported the same, remarking that he thought it was the least they could do to recognise the large amount of very good work Mr. Dudgeon had done for the society. He was one of the oldest members, if not one of the original founders of the association. He had always endeavoured, so far as his health allowed him, to attend all their meetings. The resolution was agreed to.

### *The Testimonials to Prof. Axe and Mr. Coghill.*

The PRESIDENT said there were two other matters he would like to bring before their notice. One was the testimonial being promoted for Professor Axe, and the other was a testimonial being promoted for Mr. Coghill. He thought they ought to strive to support the latter in particular. He had only had the pleasure of meeting Mr. Coghill once, but he had been struck, so to speak, by the man's devotion to his work. He did not know that anyone had done more in his particular line for the veterinary profession during the time he worked for it, than Mr. Coghill of the Royal Veterinary College, who had lately died under such distressing circumstances. Mr. Stephenson was one of the local gentlemen of the committee for receiving subscriptions They all, and especially those of them who had the privilege of listening to Professor Axe's lectures on general education at College, must remember him with very keen pleasure. He certainly had the interest of the institution at heart. He would be very much missed at the Royal Veterinary College, and they would have very great difficulty in finding a man to fill his shoes. Professor Axe was one of the best men, and had done more for young veterinary surgeons than any man.

Mr. HUNTER proposed that the matter be adjourned until their next meeting, so that they might have some information about the fund and what had been done in the affair hitherto.

Mr. DUDGEON seconded the proposal, which was agreed to.

Professor WILSON exhibited an interesting specimen of a fœtus taken from a ewe.

The HON. SECRETARY read a circular letter from the Central Veterinary Medical Society concerning the Benevolent and Defence Societies.

### *Presidential Address.*

BY W. ASHTON HANCOCK, M.R.C.V.S.

Gentlemen,—In the first place it will be necessary for me to tender you my sincere thanks for the great honour you have conferred upon me in electing me your president for the present year. It is impossible not to feel in a certain sense proud, because it is undoubtedly the greatest honour you can give to any of your members, but it is also impossible for me to escape the sense of my own unworthiness, but whilst conscious of my own shortcomings, it will ever be my most earnest hope that no word, deed, or thought of mine, will detract in the remotest degree from the power for good that has reigned in this society in the past, not only among its own members but with the profession generally.

It will not be necessary for me to occupy your time at any length, because you have a treat in store from my old college friend, Professor Edgar far beyond any humble effort of mine. I will therefore just touch upon one or two matters of interest and ripe for discussion, and as far as possible will endeavour to further their progress during my year of office.

First, then, the question of "cruelty to animals" is one of very great importance to our profession, as well as of serious interest to all owners of horseflesh. It is perhaps too much to hope that veterinary surgeons will be agreed as to what really constitutes or amounts to cruelty in every case, or in any class of cases that may be brought into court by the society or police; at the same time it would be quite within the bounds of prudence and common-sense to discuss where the line should be drawn at some of our meetings, and if any good can be effected, have the matter brought before the notice of the Council.

It will of course be patent to anybody that veterinary surgeons are in a measure responsible for some of the hard words that have been said concerning them. We all know how eager some of our professional brethren are to jump into the witness box and give expression to an opinion on some case of supposed cruelty they have not even seen, and we have many of us frequently observed those big cases in which four or five will swear to a certain condition of a wound or limb on a certain day, and then four or five veterinary surgeons will swear exactly the reverse. These cases in which such opposite views are expressed are much to be deplored, and do incalculable harm to us as a profession. But when we have magistrates who defy the whole of the veterinary profession as to what constitutes cruelty and rely solely on their own judgment, it is high time that we took some stand, and also made some great effort to be united in our opinion concerning certain common chronic conditions so frequently found.

There is also the question of the constitution of the bench in many of our large provincial towns, and it would be a good thing if on every bench there were a veterinary surgeon. One could point to more than one gentleman in this city who would with dignity not only to himself and profession, but also with great utility to the whole district, worthily discharge the duties that devolve on those who have to mete out justice, and I do think such a gentle-

man would be found of very great assistance in some of these cruelty cases, particularly those in which you have conflicting testimony.

In some of the provincial towns we have already some members of the profession on the bench, and we are proud to have as one of our members a gentleman serving as magistrate in an adjoining county; and I believe it will found to be the fact that in no single instance has the selection of a veterinary surgeon to serve on the bench proved anything but of material benefit to the public generally.

The next subject I wish to draw your attention to, is the question of opposition to experiments being carried out on the lower animals with a view to the acquirement of knowledge concerning, and origin of certain diseases. At thepresent time there are a few persons in this country who have power to carry on experiments on the lower animals, but it would in my opinion be a national benefit, as well as of very great help to both the veterinary and medical professions, if the powers at present granted were extended. By no means would it be desirable that the facilities for performing this kind of work, should be granted to any person having the desire and inclination to apply for a licence; for it must be allowed that considerable dangers and risks must accompany any work carried out in endeavouring to get to the root and origin of some diseases common to mankind and the domestic animals; and, further, there is the question of cruelty to consider, and it would never do to allow too many to do this work. In this we are very much handicapped as compared with our professional brethren on the continent, and the want of power to carry on experiments in this country will tend to keep the scientific men of our day in the background. None of us would for a moment grudge Pasteur, Koch, and others the success that has attended their grand work, but we must regret and deplore the fact that the same opportunities are not open to the eminent pathologists of our own country.

The principal argument advanced by those opposed to experimental research in medicine is that these researches cannot be conducted without in some degree inflicting pain; but surely if it can be proved that good will result, we should be justified in performing this so-called wrong in order that benefits to the country may be produced. I was perusing a copy of one of the old journals the other day on this very question, and although it was written many years ago, the writer's views are well put, and if time would only permit I should like to read them, but there is one paragraph I cannot refrain from quoting. It is part of a lecture delivered by Dr. Wm. Cayley to the students at Middlesex Hospital about eleven years ago. He says, "I believe this argument against experimental research to be based upon a profound misconception of the whole system of nature and man's place in it, but if we survey nature with the eye, not of sentiment but of science, what do we see? An internecine struggle for existence carried on throughout the whole domain of organic life. We see the strong preying on the weak, the higher on the lower, and only too often the lowest forms of all inflicting widespread devastation on the highest. What, then, as a necessary result, is our behaviour towards the animals by which we are surrounded? If we consider them injurious to us we extirpate them without scruple, we kill them for our food, perform painful operations and mutilations to render them more adapted to our service. We thwart their natural instincts, we separate parents from their offspring, regardless of the pain we thus cause, and we do most of these things because if we did not, we should be unable to hold our own in the battle of life, and all this passes unregarded, because what is customary fails to strike the imagination, but should we perform some inoculations for the purpose of investigating the nature and checking the ravages of some contagious diseases, should we make some experiment to elucidate some important physiological law, a clamour is set up against the cruelties of scientific investigation."

I do think this profession should show a little more fight on this subject, and not calmly sit under the ridiculous assertions that are indulged in by some of the leading lights of the anti-vivisectionist society.

As an instance of the extraordinary language some of these opponents of physiological and pathological research can indulge in, I will just quote an extract from a paper by one of the speakers at the last conference of anti-vivisectionists at Nottingham. That speaker said "a deadly battle was being waged against a compact army of obdurate and unscrupulous men, who misled the majority of their countrymen, and nearly all the press and parliament," and also urged "that they should not subscribe to hospitals having vivisectors on their staffs. They must not receive vivisectors in their houses, or permit their sons and daughters to associate with them."

Such effusions as these—that is if such words can be assumed to be arguments against experiments being carried on for the country's benefit—are too grossly absurd to warrant anybody replying to them; but still, they, unfortunately, are not uttered without influence on some sections of the community, and it behoves us to take this question up at some of our meetings, and, at least, give the reason for the faith that is in us.

I will now draw your attention very briefly to the suppression and extinction of tuberculosis, and then make a few remarks concerning glanders.

In passing, I may state that the policy adopted by the Board of Agriculture at the present time is, in my opinion, the correct one, viz., taking up one or two diseases at a time and dealing with them in a thorough and systematic manner—dealing generously with owners of stock, and at the same time not losing sight of the fact that without the veterinary practitioner's aid they cannot be of much benefit.

As regards the question of tuberculosis and its suppression, there is no animal plague existing in this country at the present time that is accompanied by such loss and trouble to stock-owners as this disease, and it is made the more difficult to contend with by reason of veterinary surgeons not being called in to this class of disease, as a rule, and also by reason of its slow and insidious method of spreading from one animal to another. What, then, can we do to, in a measure, at all events, to control it? We may, 1st. Prevent breeding going on in any stock tainted in the slightest degree. 2nd. Whenever a case is found, or even suspected, isolation should be enforced. 3rd. Slaughter is necessary at once, and instead of burying it should be removed, if possible, to knackerman's premises. 4th. The remaining stock should be frequently examined, and particular care taken with regard to disinfection of the premises. 5th. Compensation should be granted to the full value before slaughter.

You will be aware that at the present time tuberculosis is not included in the list of contagious diseases under the Act; but it should be so, if only on account of the danger of infection that may arise to human beings, especially young children, from drinking the milk of infected animals. Owners of stock may cry out about swine fever and its consequent loss to owners of pigs, and pleuro-pneumonia and its loss to dairy-farmers, but, in my opinion, the loss to owners of stock and the country generally is as nothing when compared with that attending an outbreak of this scourge, tuberculosis.

Assuming that the Government made an effort to deal with this disease, the method of extinction would have to be on totally different lines to that brought into use in getting rid of pleuro-pneumonia and foot-and-mouth disease; but undoubtedly very much good would result if a few veterinary surgeons were appointed to certain districts, and, to begin with, those so-called hotbeds of the disease should have particular attention paid to them. These gentlemen could act in conjunction with the local veterinary surgeons, could visit the dairy-farms and markets of the districts, and in a variety of ways be

of very much utility in getting rid of this frightful scourge. Of course, the details and methods of their duties would have to be thoroughly gone into and arranged; but, broadly speaking, in the event of the Government deputing to the Board of Agriculture power to deal with this disease experimentally, say for a period of five years, there would be required a small staff of veterinary inspectors, to whom should be deputed the sole task of carrying out any measures that may be suggested from headquarters. It is quite unnecessary to expend any extraordinary sum of money in trying to suppress and exterminate it on the same lines as pleuro-pneumonia; it would be more with a view to purchase of old wasters at their value; nor the value that once attached to them. There are byres in this country that contain nothing but this class of animal, therefore the owners should only receive the fair value, and if some of the owners only received a visit of an independent and competent inspector under the Dairies Act, and that individual would give a straightforward and honest report as to the condition of the cowsheds, and especially as regards their sanitary condition, space, etc., many of this class of cowkeeper would be got rid of, simply because no remedy could be found unless the rotten wooden places were burnt to the ground; and as after a few years very few wasters could be found, the traffic in them, and the milk from such an abominable source, would naturally cease.

England is nothing without pluck, but we have not up to the present time exhibited much of that characteristic in battling with this terrible foe.

As regards glanders, there never was a time more suitable for stamping out, if only for this reason—that there has never been a time when it could be done so effectually and at the same time so cheaply; not that it will cost very little to do it, but nothing like it would have done three or four years ago. There are other reasons, however, why the Government should deal with this question, and thus speedily get rid of the disease by uniform action. Everybody will agree that there is no disease common to mankind and animals that is accompanied by such awful results, no disease that yields so readily to the stamping-out process, and it is also very localised at the present time, which would be found of great assistance in any effort of extirpation.

Before sitting down, gentlemen, there are one or two matters of interest concerning ourselves. I allude to the apparent lack of interest displayed by many of the younger members of the profession in this district in the concerns of this veterinary association; they are frequently absent from the meetings, and when present do not appear to take that interest in the discussions they might. For an association like this to be of actual benefit to the members of any district (that is to say apart from its meetings), it should have as many as possible of the resident veterinary surgeons in that district on its list of members. And, gentlemen, there is scope here for all of us to do our share towards bringing some new blood into the association. How frequently we hear of objectionable acts of brother practitioners; even these would almost be unheard of if we rubbed our shoulders together a little more. Undoubtedly many of us stoop to do things others would not; but in these days of fierce competition many little shortcomings might well be overlooked, and if any of us have a grievance against a fellow-practitioner let it either be brought directly to his notice, or, if he be a member, bring it before the members. I often think what a great benefit it would be to us all if we just would devote a little time to cleaning out our own nest, instead of always striving to say something derogatory of a brother practitioner, especially when such remarks are uttered to persons outside the profession. These exaggerated statements only do harm to those who utter them, and at the same time do an incalculable amount of harm to the profession.

In conclusion I will simply say that it is my sincere desire that powerful though this association has been in the past, it may grow even more powerful

in years to come, not only growing in strength of numbers, but also in influence for good among us all; and that a real effort will be made by all of us to bring about many little social reforms in our own sphere, so that real lasting good may result, reforms which will not only bear fruit in our midst, but will be reflected far and wide, so that at no distant date our noble profession will occupy its proper position. We have made great strides recently, but much remains to be done, and especially those improvements which can only be brought about by individual efforts.

Mr. HUNTER proposed a vote of thanks to the president, whose address he said was very practical indeed. Mr. Hancock had made quite as good a president as he had done a Secretary. He had done more for the Society than almost any member they had. He had dons his work well, and he had never neglected an opportunity of doing good to the Society.

Mr. CLEMENT STEPHENSON said he had very great pleasure in seconding the vote of thanks. He endorsed most heartily every word that had been said by Mr. Hunter. He must say that there was an enormous amount of material in his address for thought and for work. There was one subject which the president had touched upon which was a very large one—tuberculosis. He did not agree with all the president had said about it. The president would lead them to believe that if they got rid of the old waster cows, worth about 20s., they would get rid of the disease. His opinion was that they would find tuberculosis in the primest and fattest animals that were slaughtered. The whole thing would have to be taken in hand. They would have to face it. He had thought a great deal about it, and had made a great many experiments and a great many *post-mortem examinations*. Only last week he had been in London and had arranged for a supply of tuberculin and for carbolised water and the necessary instruments for applying them. He believed that they as veterinary surgeons had a great deal in their power in the way of getting rid of tuberculosis. He believed there was not the slightest doubt they were often consulted ahout animals which they might be morally certain were suffering from tuberculosis in some form, yet they could not make a certainty of it. He thought that tuberculin had now been brought to such a perfect state that they should carry out the tuberculin tests in every herd about which they were consulted—that was, of course, where they had the liberty to do so from the owner. They would then have something they could swear by. In a suspicious case the proper thing to do was to advise the owner not to breed from the animal, and if it was a cow not to consume the milk, but to feed the animal up and have it slaughtered at once subject to inspection. He considered it wrong tb let the thing go on and the loss fall upon the butcher. He believed that many good fat animals, if slaughtered under inspection, might be passed for food, where only a very small portion of some tissue or some small gland was affected. Iu cases of that kind the probabilities were that the inspector would pass the beef, and therefore the loss would not be very serious. In a case of general tuberculosis there could of course be only one end of the animal—that was the knacker's yard, or thoroughly destroying by fire or burial, thus getting rid not only of the carcase but ot the bacilli also. It was an enormous question. and they had just touched the fringe of it. He saw immense probabilities for the profession there. They had it very much in their own hands, and he would like to see members in active practice take a great interest in it, and even go so far as to try the tuberculin test in every case they might be called to. He had great pleasure in seconding the vote of thanks to their worthy president.

The vote of thanks was carried with acclamation.

The PRESIDENT, in reply, said he was very much obliged to Mr. Hunter and Mr. Stephenson for the way in which they had spoken of him, and to the meeting for the manner in which the vote of thanks had been accorded. He

knew that the subject of tuberculosis was a very large one, and thought it was time they did something. Those who were present at the last annual meeting would remember the remarks they had from Dr. Murray. If he mistook not, Dr. Murray attributed 35 per cent. of the cases of death at the children's hospital to tuberculosis; and when they had such a fact as that brought before their notice by a very prominent member of the medical profession it was time they did something to try and stop tuberculosis in animals, because he thought they might take it for granted that those children had derived the disease from milk. They must have some kind of control over the milk supply of their great cities. He remembered about a couple of months' inspection of the dairies of a very large city about two years ago. He was probably between six and seven thousand cows, and was simply astounded at the class of animals in some of those places. He was quite certain if Mr. Stephenson had seen some of those byres he would have valued some of the cows at 30s. apiece. The whole of the milk from those cows was being carried into a large city. He was surprised at the Government permitting such a state of things. It was time something was done. He did not care what they did so long as they would try to suppress this scourge.

Before reading his paper, Professor Edgar thanked the meeting for their kind invitation and for their genial welcome. The subject was one in which they all had a very practical interest. It was one on which they all realised that they as a profession held very definite opinion.

"Comparative Sensibility and Expression of Pain in Animals."
By Professor W. Alston Edgar, F.R.C.V.S.

Pain is a vivid reality! It may be difficult of definition; we may be compelled, when asked what it is, to say we do not know; yet it is to all a reality, an experience which in some form or other few, if any, can hope to escape.

We naturally turn to the physiologist and ask "what is pain?" The answer is "it *results* from excessive stimulation of any sensory nerve, and may be *exicited* by the violent application of all forms of stimuli, whether mechanical, chemical, thermal, electrical; or be due to some alteration in the body itself, such as inflammation.

If, disappointed, we turn to the lexicographer and ask "what is pain?" the answer is "an uneasy sensation in animal bodies, of any degree from slight uneasiness to extreme distress or torture."

We turn again to the poet and ask "what is pain?" He replies:

"Excess of cold as well as heat pain us.

and again,

"Our pains are real things, and all
Our pleasures are fantastical."

Still dissatisfied we turn upon ourselves any of the stimuli suggested by the physiologist and keenly realise, that which we cannot define—pain.

It is the purpose of this paper to deal chiefly with physical pain, and to compare the sensibility evidenced in animals with that of man. Attempts have from time to time been made to induce the belief that the amount of suffering in the animal world is apparent rather than real, and that compared with man, animals suffer really very little pain.

It is not a little singular that some who have written on the subject have, apparently by virtue of their position, been shut out of association with animals, and have reasoned rather from analogy than personal observation—not always a safe procedure. As it is "only by living with a person that one gets to know him," so to *know* animals one must live very much with them both in health and disease.

Most veterinarians know from the daily practice of their profession that

some of the domesticated animals at any rate, have a terribly large share of suffering in passing through their comparatively short life. In following the life history of some of the dumb slaves of man, hard labour and pain seem to be their inheritance, and it is difficult to see how they get much pleasure out of their existence. Sir James Crichton Browne has recently said "the pursuit of pleasure and avoidance of pain are guiding principles of biological progression."

It will be a happy day for the animal world in general when that biological principle filters down from the scientific platform through the strata of general society. He further says "the more accustomed we become to pleasure, the less tolerant are we of pain, and hence our histrionic writhings nowadays, under comparatively trifling twinges." That civilised man is universally intolerant of pain for himself is probably strictly true, hence the haste with which he seeks its removal; but it can hardly be said, even in this humanitarian age, that that intolerance extends to animals, taken as a whole, for in a large number of cases the pleasure of man is still obtained at the expense of pain in animals below him.

In discussing this subject we meet some of the most remarkable inconsistencies of human nature, of which as has been well said, there is "much in man." Relating to pain in and cruelty to animals the law is strangely inconsistent, and public opinion is equally so. Probably this is largely due to the impression before mentioned, that animals comparably with man are insensible to pain. Dr. Collier (*Nineteenth Century*, vol. xxvi., No. 152) takes such a view by the title of his paper "The Comparative *Insensibility* of Animals to Pain." The cases quoted and the arguments adduced are intended to support the title. He says "the object of the present article is to show that there is very strong reason for believing that the *lower animals* (in that term he includes all animals other than man) are far less sensitive to pain than is generally supposed."

The article firstly makes human experience the standpoint for comparison, and remarks upon the varying degrees of sensibility to pain in different types of men, the nervous being much more sensitive than the muscular; good examples of the former being found among scholars and students and of the latter among agricultural labourers. But the whole argument of the paper is weakened by the following statement. "Evidence is even stronger in the case of uncivilised races, the observations of all travellers pointing to the extreme insensibility of pain exhibited by savages. A good example was given in *The Spectator* a few months ago, when a correspondent related the fact that on the introduction of boots into New Zealand, the vanity of the natives was so great, that when one of them was happy enough to become the possessor of a pair, and found that they were too small, he would not hesitate to chop off a toe or two, stanch the bleeding by covering the stump with a little hemp, and then force the feet into the boots." A dog would be an intensely sensitive animal compared with such men.

Sir J. C. Browne in his article previously quoted says "there can be no doubt that sentiency advances with civilisation. The feelings of savages are obtuse and narrow in comparison with those of cultivated races, and within the cultivated races, those individuals feel most acutely who are most cultivated . . . the increase of sentiency in the animal kingdom and in the human race always corresponds with increase of development and differentiation in the higher nerve centres. In the human and in the mammalian brain we have, in the occipital and temporo-sphenoidal lobes, sensory centres or psychosensorial areas, and it seems to be more than probable that the development of these is a measure of the sentiency of the animal or race."

The statement that "*those individuals feel most acutely who are most cultivated*," seems to be only a partial explanation of the very varying sensibility

to pain evidenced in man. This sense is widely different at different times even in the same individual. Under prolonged mental strain, anxiety, or over work the nervous system becomes intensely sensitive, when even sounds are sufficient to produce a thrill of pain or stir up anger, and the slightest injury may cause intense suffering. A month in the Alps will quickly change this highly "cultivated" being, and render him almost as insensible to pain as a Red Indian. A high state of "cultivation" is frequently obtained at the expense of physical culture which is perhaps as much an explanation of increased sentiency in the scholar as of its diminution in the agricultural labourer. That it requires long cultivation to become inured to suffering is evident both in the individual and the race.

In concluding that sensibility to pain is wholly the outcome of cultivation and progressive development of the nerve centres mentioned, there is little or no allowance made for such noble qualities as fortitude—cultivation of the old British quality called "pluck," which may possibly produce hypertrophy of another cerebral area exercising a kind of inhibitory influence over the temporo-sphenoidal centres—just as a high culiivation of the intellectual areas as a whole controls the centres governing mere animal instincts. The man of iron will who takes his pain without a muscle quivering and who, out of sheer manliness, will say he feels no pain, is told he is not sensitive to pain. The Indian who, after years of rigorous discipline and with generations of transmitted courage, can tear through with a rope the skin and muscles of his own back, and thus admit himself to the title of a Brave, might be comforted with the assurance of the scientist that to him the process was not a painful one. With reference to the modified sense of pain in uncultivated races of mankind, it has been pointed out (*Lancet*, vol. ii., 1889, p. 801) that "whilst negroes will batter each other's heads with blows that would probably prove fatal to a European, but which does them, partly on account of their thick hair and dense skull, little harm, yet a blow on the abdomen, or even it is said a cut with a cane which would cause little more than temporary inconvenience to the European, is seriously depressing or even fatal to them."

*(To be continued.)*

## MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

### Annual Meeting.

The annual meeting was held at the Grand Hotel, Birmingham, on February 9th. The president, Mr. T. H. Merrick, of Northampton, occupied the chair, and there were also present—Messrs. J. Malcolm, Blakeway, Stanley, Parker, Gibson, Wilson, Birmingham; Carless, Stafford; Proctor, Solihull; Crowhurst, Leamington; Trigger, Newcastle, Collett, West Bromwich; Prickett, Walsall; Trevor Spencer, Kettering; Grasby, Daventry; Dr. Manley, West Bromwich; Huband, Cheltenham; Abell, Derby; Bayley, Matlock Green; King, Newport Pagnell; Barrett, Nuneaton; Olver, Tamworth; Over, Rugby; Smith, Tunstall; H. J. Dawes, hon. sec. Visitors: Messrs. Byner and Pearce.

Letters of apology for inability to attend were read from Professors Walley, Williams, McFadyean, Macqueen, Penberthy; Sir H. L. Simpson, Messrs. Greaves, Wragg, Russell, Burchnall, Perrins, Bainbridge, Merrick, Aris, Hodgkins, and others.

*Resignations.*

The HON. SECRETARY read letters from Messrs. Blakeway, Stourbridge; Carless, Shrewsbury; and Freer, Uppingham, tendering their resignation as members of the Association, through their inability to attend. The resignations were accepted with regret.

*Correspondence.*

The HON. SECRETARY read the following letter, which he had received from the Central V.M.S. :—

The Central Veterinary Medical Society,
93, Huddleston Road,
Tufnell Park, London, N.

H. J. DAWES, Esq. February 8th, 1894.

Dear Sir,—I am requested by the President of the C.V.M.S. to acquaint you that at an ordinary general meeting of this Society, held at 10, Red Lion Square, London, W.C., February 1st, 1894, on the motion of Mr. J. S. Hurndall, seconded by Mr. H. Edgar, it was resolved "That the Manchester Benevolent and Defence Society be asked whether they are prepared to consent to an alteration of its basis, with a view of separating the benevolent from the defence objects of the Society, conditionally upon the accession of a large increase of members, and that the maximum available for defence purposes should be unlimited." Will you kindly lay this resolution, at your next meeting, before the members of your Association, in order to ascertain their views respecting the matter, and further hope, at your earliest convenience, to receive a reply as to their views on this important question. Permit me to add that, unsolicited, fifteen members present, out of a maximum of thirty-two, appended their signatures to the proposal, and, I take it, you will see that there is a strong feeling existing among the members of the C.V.M.S. of some change being effected relative to the Manchester Defence and Benevolent Society.—I am, sir, yours faithfully,

F. C. MAHON, *Hon. Sec.*

Mr. TRIGGER said he did not think there could be the slightest harm in endorsing it.

After a few remarks from other members, it was eventually resolved, on the motion of Mr. PROCTOR, seconded by Mr. STANLEY, that the letter be placed upon the agenda for discussion at the next meeting.

The HON. SECRETARY next read a letter which had been received from Mr. F. W. Barling with reference to the publication of a book by Mr. Healy, M.R.C.V.S.

The CHAIRMAN, for the information of the members present, read the title of the publication to which Mr. Barling referred, namely, "A few useful remedies for the common diseases of stock, by Joseph Healy, M.R.C.V.S.L., (County Council lecturer upon veterinary science), published by Cowing and Son, *Press* Office, Barnet." The Chairman also read the index of the book, and said that not only were the recipes given, but the cost of making them up as well.

Mr. COLLETT thought such a proceeding was most improper, and the author of the book ought to have his name brought before the Royal College of Veterinary Surgeons.

Mr. GOLD acquiesced, and said anyone guilty of such conduct was not doing justice to the profession.

Mr. STANLEY, Mr. WM. CARLESS, Mr. GOOCH, Mr. MALCOLM, and Mr. TRIGGER also expressed their deep indignation at the publication of such a book. Several suggestions were thrown out as to what should be done in the matter, and eventually

Mr. MALCOLM moved the following resolution: "That the Secretary be instructed to get a copy of the book and send it to the Secretary of the Royal College of Veterinary Surgeons, with an expression of the indignation of the Midland Counties' Association at its publication."

Mr. GOOCH seconded the resolution, which was made to include a vote of thanks to Mr. Barling for bringing the matter forward. It was unanimously carried.

The other subjects mention in Mr. Barling's communication were received with interest, but were not discussed.

*New Members.*

Messrs. John T. Abell, of Derby, and Alex. E. Bayley, of Matlock Green, were elected members.

*Treasurer's Report and Balance-sheet.*

The HON. TREASURER presented his annual financial statement, which had been duly audited by Messrs. Gibson and Trigger. It showed that the balance in the bank on January 1st, 1893, was £162 4s. 11d.; subscriptions and entrance fees for 1893 paid into bank, £44 10s.; bank interest, June, £2 5s. 7d.; bank interest, December, £2 7s. 11d.; total, £211 8s. 3d. After paying all dues and demands, there was a balance at the bank on December 31st, 1893, in favour of the Association of £183 5s. 7d.

*Election of Officers.*

The PRESIDENT said as they all knew this was the jubilee year of the profession, and he thought that under those circumstances they should elect for their president a gentleman who was well known and who had attained high honours, so as to be able properly to represent their Association in London, or wherever else meetings might be held. He had, therefore, great pleasure in proposing Mr. H. Olver, of Tamworth.

Mr. STANLEY seconded, and said they all knew how well Mr. Olver discharged the duties of the office some years ago, and he felt sure his election would be a popular one.

The resolution, on being submitted to the meeting, was carried unanimously, and amid applause.

On the motion of Mr. BLAKEWAY, seconded by Mr. WARTNABY, Mr. Stanley, of Birmingham, was elected a vice-president.

On the motion of Mr. TRIGGER, seconded by Mr. MALCOLM, Mr. Pritchard, of Wolverhampton, was also elected a vice-president.

Mr. OLVER, in returning thanks for his election, said he could well remember about twenty years ago meeting three times with five or six members to discuss the advisability of continuing the Association. They decided to keep going, and the strides they had made and the success that had attended them was exemplified by the large membership which they now possessed. He thanked them very sincerely for the great compliment they had paid him.

Mr. STANLEY and Mr. PRITCHARD also acknowledged their election as vice-presidents in suitable terms.

Mr. OLVER next moved that their present treasurer, Mr. John Blakeway, be re-elected. The balance-sheet which they had heard him read proved that he gave care and attention to the Association's interests. The motion was seconded by the president and unanimously carried.

Mr. OLVER then moved that Mr. H. J. Dawes, of West Bromwich, be re-appointed hon. sec., seeing that during the time he had held the office he had performed the work in a courteous and thoroughly satisfactory manner.

The PRESIDENT, in seconding, said it would ill-become him if he did not supplement Mr. Olver's remarks with a few words of his own. During his year of office, Mr. Dawes had been of the greatest assistance to him, and he

had never had to ask him to do anything but what he had obliged in every possible way. He only hoped Mr. Dawes would be of the same benefit to Mr. Olver as he had been to him. The motion was carried unanimously.

Mr. DAWES and Mr. BLAKEWAY both briefly thanked the members for the renewal of their confidence, and promised to continue to discharge the duties of their respective offices to the best of their skill and ability.

*Selection of a Candidate for the Council R.C.V.S.*

Mr. MALCOLM said there could be no doubt as to who their nominee should be for a seat on the Council of the Royal College of Veterinary Surgeons. They had a gentleman present who had served them faithfully for the past four years; he referred to Mr. Trigger, who had attended most regularly to the various meetings of the Council, and on the Charter business alone, journeyed to London no fewer than eleven times. He had much pleasure in moving that Mr. Trigger be their candidate again for the position.

Mr. WARTNABY seconded, and said he was sure a better man could not be found.

The PRESIDENT, before putting the motion to the meeting, said that as Mr. Trigger's colleague on the Council, he could bear out all that had been said concerning him. There was not a better or more straightforward member of the Council than Mr. Trigger. The resolution was unanimously carried.

Mr. MALCOLM moved, seconded by Mr. OLVER, and carried; that the following committee be appointed with instructions to do all in their power to secure Mr. Trigger's election; Messrs. Olver, Merrick, Dawes, John Blakeway, Malcolm and Stanley.

Mr. TRIGGER returned thanks to the members for having again selected him as their representative upon the Council of the R.C.V.S., and he was especially pleased to accept the honour, inasmuch as they gave him a free hand and an independent voice, instead of insisting upon his acting in any particular way. Whilst he had been on the Council, he had certainly not missed many meetings. In the first year he attended nine, the second year ten, and the third year twelve, making 31 meetings in three years. He did not know the exact number of meetings held last year, but his attendance, he was sure, was up to the average, for he did not think he had missed a single one. It would be a great pleasure to him, if re-elected, to continue to look after the interests of the profession.

*To Dine or Not to Dine.*

The next question that was considered was the desirability or otherwise of continuing the Society's dinners except at the annual meeting.

Mr. MALCOLM, who introduced the subject, said it had been their custom after each of their quarterly meetings to have a dinner, but as it did not begin until five o'clock, many of those who came from a distance had to hurry away. It was thought that instead of having a dinner it would be better to have a knife and fork tea at three meetings of the year, and a dinner at the annual meeting. He believed that such a course would benefit rather than injure their gatherings, and he begged to move a resolution to that effect.

Mr. OLVER said he was pleased to second the resolution, and also to throw out a suggestion. It had been a very common practice for several years past, and he was afraid that he himself began it, for a luncheon to be given by the veterinary surgeons in whose town the meetings took place. He could not help thinking it was a considerable tax upon the gentlemen who had time after time to provide that luncheon, and he thought it would perhaps be just as well if it were dropped.

The HON. SECRETARY explained the difficulty in which he was always placed through the holding of the dinners. He was expected to give some

sort of an estimate as to how many members would remain to dinner, and it was almost a matter of impossibility to be anywhere near the correct number. He suggested that in future a similar plan be adopted to that which was in vogue in other associations, and that was to desire each member, on receipt of his circular calling the meeting, to send word to the secretary whether or not he intended to remain to dinner.

Mr. SMITH thought they might have dinner before the meeting.

Mr. TRIGGER pointed out that the members did not all arrive at the same time.

The PRESIDENT read a letter from Mr. Carless, of Worcester, who whilst unable to be present, wrote to suggest that the dinners be held as usual.

The PRESIDENT himself supported Mr. Malcolm's proposition, which, on being submitted to the vote, was carried unanimously.

Mr. GOLD read a paper on—

"SOME DISORDERS OF THE STOMACH AND INTESTINES OF THE HORSE."

He said: In opening my paper this evening, I shall first describe *Acute Gastric Indigestion.*

*Synonyms*, Gastric Impaction, Stomach Staggers, Gastric plethora, etc.

*Causes.*

We will divide these into Predisposing and Actual:—

*Predisposing causes* are as follows: Diseases of the accessory organs of digestion as teeth, and salivary glands; disease of the liver, spleen, and pancreas, these acting reflexly; perhaps one of the most important is disease of the stomach itself.

*Actual causes*: Overgorging is the great cause in most if not in all cases. Ravenous feeding on part of horse, especially where he bolts his food without properly masticating it; errors of dieting. The food stuffs which gives rise to this condition are best divided into two—*Succulent*, such as grass, green clover, rye, green vetches, grains and growing wheat. Wheat is perhaps the worst of all. *Dry*, such as beans, peas, wheat, vetches, sharps, barley flour, bean meal, pea meal, indian corn, and meal, pea haulm; straws, such as bean, pea, wheat and oat straw, and badly made hay and clover, &c. Wheat and some of the succulent food stuffs not only cause indigestion, but generate a ferment; and some writers go so far as to say that a poison is so formed, whilst others assert that a form of alcohol is produced, and gives rise to intoxication, and in this may they account for the peculiar head symptoms seen in some of these cases.

*Symptoms.*

The symptoms in the early stages are not very indicative of pain. The horse is perhaps dull, languid, and refuses his food; in the course of time, however, he begins to show abdominal pain, such as lying down, pawing with feet, yawns, turns up his nose, will often stretch himself out as far as he can. When down, will lie on his side and put his nose back into the epigastric region, and not in the flank, as is usually the case in intestinal derangements. As time goes on he shows more decided symptoms; colicky pains increase, in some cases pain on pressure over the gastric region; sometimes shows rotund appearance. If tympany is associated with gastric impaction, and this is nearly always present when it arises from succulent food, the symptoms are more alarming, as in these cases the animal's breathing is more or less laboured, owing to pressure on the diaphragm. Pulse in the early stages is usually full, moderately strong, and slightly increased in frequency; mucous membranes are slightly injected; temperature in the early stages scarcely more than normal. If animal does not obtain relief all the symptoms become aggravated;

pulse increases and becomes much more irritable, breathing more laboured and difficult, m. m. intensely injected, and temp. may go up to 103 or 104 F. In cases where tympany occurs we get in some cases eructations of gas, and associated with the tympany of stomach we may find tympany of the bowels. In some cases the horse will attempt to vomit, and in a few cases will actually succeed in doing so, the vomit passing down the nostrils; in a few cases that have come under my notice vomition has considerably relieved the animal for a time.

If the above symptoms continue, and horse gets no relief, brain symptoms soon set in; these are usually described as dumb staggers, mad staggers, or gastric vertigo. In the dumb form, the symptoms are similar to coma; animal is partially unconscious, head usually hanging down or bored into a corner, pupils dilated, unsteady in his gait when made to move; veins are distended with blood, and if you bleed find it thick and very dark in colour; m. m. of a dark colour. Animal may die in state of coma, or convulsions, or from the result of convulsions. In the mad form you get more or less delirium, in fact, in some cases the horse appears simply wild. Pulse in this form is rapid, full and strong; bleeding has little or no effect upon it, and the blood flows very readily, which is not the case in the other form. Respiration is rapid, and m. m. are of a bright red colour. According to some authorities, the blood-vessels of the brain in this form are said to be empty; whist others assert that the symptoms are due to congestion of the small blood-vessels of the brain. My experience tends to favour the latter assertion.

*Diagnosis.*

In the early stages it is not at all easy to diagnose gastric derangements, and especially so if tympany is not present; however, if you get the history of the case, and examine food, &c., you have some data to guide you. In all cases examine your patient thoroughly before giving medicine of any kind, as neglect in this respect may lead to a fatal result. Diagnosis is especially difficult when the disorder is associated with impaction of the bowels or tympany of the same.

In giving an opinion as to the ultimate results of these cases one must be extremely careful; as I find it is some time before you can give any decided opinion, and especial care is requisite with mares in foal.

As sequelæ we have greatly to fear laminitis, rupture of the stomach or diaphragm, pulmonary congestion and brain symptoms.

*Treatment.*

This must vary according to whether impaction is due to dry or succulent food. If there is reason to believe it is due to dry food, and no tympany is present, give a good dose of physic combined with Nux Vomica, and follow this up with antispasmodics. If due to succulent food, and tympany be present—which in most cases we have to contend with—I give at once the following ball, viz., Acid Carbol., ij. drm., Camphor, ij. drm., mixed with a dry excipient, and if much pain add Gum Opii. ij. drm. I also find some benefit from Sodæ Bicarb., Ammonia Aromat., Ammon. Carb.; and in some cases I have thought I derived great benefit from whisky. I always follow this up with a dose of physic in the form of a ball. Hot fomentations to the abdomen kept up for several hours, and follow this up with smart stimulant over the gastric region. If the pulse is full and strong, and the animal shows any indications of head symptoms, I, in nearly every case, then abstract blood, usually taking about a gallon; if pain still continues, try such drugs as chloral hydras, belladonna, Indian hemp, and injections of morphia and atropine. If vomition is present, or the animal makes attempts at vomition, do not give any more medicine by the mouth for a time, or at least give it in the form of a ball. I

myself always withhold medicine of any kind for a time, and then, when I do give it, use it hyperdermically; perhaps intravenously would be even better. I do not think we should despair even if vomition is present, as the stomach is still intact, and I can well remember two cases, one in my own practice and the other in that of the practice of Mr. T. W. Butter, of Evesham, making perfect recovery after vomiting for some considerable time.

Where tympany is present some veterinary surgeons have recommended passing tube down gullet into the stomach, and trying to give relief in this way. Professor Smith, I believe, has used a special appliance of this nature; but I once tried to pass a small thin probang in one of these cases, and entirely failed to do any good. Complications, such as laminitis, congestion of the lungs, etc., must be treated according to the requirements of the cases.

*Post-mortem Appearances.*

I find that death is mainly due to one of three causes—the brain, rupture of the stomach, or rupture of the diaphragm. If death has been caused through toxic or other affection of the cerebro-spinal system, and the *post-mortem* is made soon after death, the stomach is usually intact but enormously engorged with food, the blood-vessels congested, and blood of dark colour; the blood-vessels of the liver and spleen are full of the same dark-coloured blood, and both organs more or less engorged; the blood-vessels of the brain and meninges congested, and in some cases the blood has a peculiar tarry nature, showing that exudation had been interfered with some time before death.

*Rupture of the Stomach.*—On opening the abdomen you find the contents of the stomach more or less scattered amongst the bowels and mesentery, and mesentery more or less lacerated. The rupture, in almost every case, takes place near the cardiac extremity or along the greater curvature. What is of most importance to us, as veterinary surgeons, is to decide whether rupture occurred prior to death or after; and if before death, how long, in our opinion, had it existed prior to death. Again, we may be called upon to say if there was any previous incomplete rupture, and if so, how long it had been in existence before complete rupture had taken place. The edges of the wound and the surrounding structures must be our guide in forming an opinion on these points. If rupture was *ante-mortem* the edges of the wound will be found more or less lacerated, with blood in the meshes and tissues. If horse has lived for some time after rupture you find inflammatory signs at the edges of the coats of the stomach and exudation between them. If rupture is *post-mortem* the edges of wound are clean and pale in colour, and no signs of blood or inflammation, or exudation into tissues. If there has been previous incomplete rupture you get distinct signs of cicatrization along the edges, and may have adhesion to the walls of the abdomen.

*Rupture of the Diaphragm* may be *ante-mortem* or *post-mortem*, the differences being somewhat the same as in the stomach. I have found that *ante-mortem* rupture generally takes place near the pillars of the diaphragm, and in *post-mortem* rupture it is the fleshy rim that we find ruptured.

*Simple Impaction of the Colon.*

By this I mean those cases we meet in practice due to errors in feeding, etc., quite irrespective of such cases caused by calculi intussusceptions, displacement and twists. As in stomach derangement, the causes may be divided into predisposing and actual, and the chief factors named in stomach disorders will hold good in impaction of the colon; the diseases of the liver, pancreas and spleen in this case, however, acting directly—not reflexly as in the stomach.

*Symptoms.*—As in affections of the stomach the symptoms here are not in the early stages very indicative of pain; the animal is dull and listless, perhaps

refuses its food, or picks a little now and again; pulse, respiration, and temperature not at all disturbed in this stage. As time goes on he shows more or less pain or uneasiness, such as smelling at straw and walking round box, and perhaps attempting to lie down, leaning against the stallpost or wall with hind quarters; in course of time he usually paws, stamps sometimes with hind legs, puts his nose back into flank, lies down, and when down usually lies flat on the side, occasionally bringing head round to the flank; sometimes sighs or emits slight groan when going down. There may or may not be tympany present; if it is present symptoms are usually much more aggravated, and the animal usually sweats, especially under the flank and inside of thighs; much more anxious expression on countenance, animal reels in his walk, breathing more or less laboured, and he will now sometimes fall down, as it were, instead of going down quietly. The pulse is now increased in frequency and the mucous membranes more or less injected.

*Diagnosis.*—In the vast majority of cases I consider that diagnosis is not so difficult as in many diseases that come under our notice. First inquire the history of case, examine any fæces that may have been passed; after this I usually auscultate the bowels, to find out if there is normal, diminished, or increased borborygmus going on, and this I consider of very great use to us. I then pass my hand into rectum, and examine the state of things there; if no dung, I make as complete an examination as I can of rectum, and pelvic flexure of colon, at the same time feeling down on the bladder to see if distended or not. If any dung is present and it is either coated with mucous or of a coarse dry nature, and in addition the natural sounds of the bowels are diminished but pretty generally dispersed over the greater part of the abdomen, we can then fairly well assume that we have to meet a case of simple impaction of the colon. If, however, on the contrary you have great tympany to deal with and only a peculiar metallic sound in the bowels, no man can confidently say what complication he has to contend with, and in these cases one must be extremely careful in diagnosing case.

*Treatment.*

If I have simply impaction to deal with, I consider the prognosis is favourable. Usually I give, as soon as I have examined my patient, a dose of aloes, varying according to the size and age of animal and endeavour to get horse to drink a little water after ball, witholding medicine hy the mouth for abont half-an-hour. The medicinal agents I prefer are Chloral, Indian Hemp, Belladonna, and Opium.

Some time ago I used eserin and pilocarpin hypodermically, but did not get what I consider satisfactory results; however, during the last fortnight I have tried the sulphate of eserin in two grain doses injected into jugular vein, in three different cases, and certainly with marked results, so far satisfactory that I shall continue to use it in this way. In many cases where the impaction has been due to straw chaff big doses of linseed oil are very beneficial, especially after aloes have been repeated, without any action in bowels. Enemas are very useful and in some cases I have thought that great benefit was derived from medicated enemas. In all these cases I consider hot fomentations to the abdomen of valuable service. Kneading of the bowels per rectum has been tried by some veterinary surgeons, and it is said with some success. I cannot myself call to mind any good from a few attempts I have made in this direction. When tympany is present and you do not get relief in a short time, I always have recourse to paracentesis, and if I do not get relief from the operation on one side I perform it on the other, and if necessary I repeat it as often as required, sometimes leaving the cannula in for several hours.

*Discussion.*

Mr. GOOCH, who opened the discussion, said he had had great pleasure in

listening to the remarks of their essayist, and in almost every point he felt bound to agree with him. In the treatment of inflammation of the stomach from whatever cause, he found that the best thing to do if there were any pain was to fly to the subcutaneous injection first. He understood the essayist to say that shock to the system was not so often the cause of death in cases of the stomach being affected. He (the speaker) had in his practice found several cases that had resulted fatally from shock to the system before any inflammatory action had set in. He (the speaker) preferred giving medicines in the form of a liquid instead of a ball. In the drink the agents got quicker to work. Referring to cases of tympany he said he had punctured a horse five or six times and if the tympany returned he punctured again, and in ninety-nine cases out of a hundred he got relief.

Mr. MALCOLM said that the stomach and bowel affections to those of them in town practice were of very great moment indeed, and speaking to the best of his recollection 99 per cent. of his fatal cases arose from stomach affections; that was to say either from rupture of the stomach or twist of the bowels, and it did not matter what system of treatment they tried the case would prove fatal. It was very bad, especially in the case of a valuable horse, to find that with twist of the bowel they could do nothing. In his experience he had come to the conclusion that those cases arose from errors in dietary, or in water, or in work, Perhaps it was a serious thing to say, seeing that he had the regulation of the feeding and the watering and to some extent the working, but notwithstanding the best care he could give to it, he found in many cart horses cases of twist or rupture of the stomach. They hardly ever found that so with their lighter horses. With reference to the water, the chief point he had to look to was to see that the horses had a sufficiency of it. The present system of feeding cart horses was with very concentrated food, if he might so term it. For instance, they gave about 20lb. of corn and 14lb. of hay per day per cart horse. Thus the horse has a great quantity of dry food, and if it worked hard and perspired freely it must have a sufficiency of water or it would soon have impaction of the stomach, and then it becomes very liable to rupture. When they got impaction of the stomach they had to give sedatives to keep the horse quiet or else anti-spasmodics. The best remedy was the oldest one in his opinion, and gave relief quickest, and that was simply a dose of physic. It seemed to be gone somewhat out of date but he resorted to it regularly. Of course he took care to be very careful in the diagnosis. Anyone could diagnose a case of impaction of the bowels. They found the rectum very largely dilated, and he had no trouble in curing his case so long as there was no twist. There was just one point he should like to mention in regard to flatulency; unless he withdrew the cannula after he had evacuated the gas from the bowel, the bowel slipped off, and if he left the cannula in it was simply protruding in the abdomen. If Mr. Gold had a special cannula by which he could avoid that difficulty he (Mr. Malcolm) would be very glad to hear about it.

Mr. TREVOR SPENCER said that painful abdominal diseases were his favourite study With regard to impaction of the bowels the essayist had told them about the use of physostigmine. It was a drug acting very violently and he had used it in a few cases, but to tell the truth he was rather afraid of it, and he hardly knew whether it was safe to give it. He should not care to give it unless he was absolutely certain that there was no danger. He had frequently given a full dose of morphia—10 grains—to cart horses. They got intoxication afterwards and the animal would walk round his box for six or seven hours together, but he did not think that hurt the animal. He always took care, however, to leave word with the attendant not to mistake the intoxication for a return of pain. In every case of impaction he found the rectum dry and there seemed to be no life in it. Then he found

that nothing acted so well as an enema of warm oil, which had the effect of lubricating the parts. Mr. Gold had spoken about the use of opium. Well, theoretically they knew that it was not correct. They were simply opening the bowels with the physic and closing them again with the opium. He never gave opium himself except in ordinary cases of spasmodic colic in the summer time. He found there was no agent so good as chloral.

Mr. OLVER said the subject under discussion was an important one, and one in which they had everyday experience. Mr. Gold in referring to gastric troubles, and especially to gastric impaction, suggested that in his opinion when they got brain symptoms it was due to alcoholic poisoning. That was rather a question of theory than of practice, but his (Mr. Olver's) impression was that owing to the great distention of the stomach from gas, they got direct sympathy through the nerves with the brain. In cases of vomition Mr. Gold thought they should not give liquids. Well, he (Mr. Olver) did not see why they should not. He had never seen any ill-effects from giving liquids, but on the other hand he had seen most marked good effects. His reason for knowing that was through having had an old pony that would not die and would not get better, and he tried to kill it with hydrocyanic acid, with the result that it recovered almost immediately. He had had very considerable experience in the use of physostigmine and he thought it was a valuable drug. He believed it did not act in the ordinary sense as a purgative. He had constantly administered it soon after giving a dose of physic, and he had never seen any ill-effects from it. It acted on the large intestines, and perhaps more particularly upon the rectum, and it emptied that part and so allowed other things to pass on. As he said before it was one of the most valuable of drugs if used in a proper quantity, for whilst a small dose was of no use whatever a large one might produce effects which to say the least of it would be alarming. On the question of puncturing the bowels, he believed they could puncture as often as they liked without ill effects, but when he punctured and attempted to leave his cannula in, it receded from the bowel and simply hung from the abdomen. Therefore when he had emptied the gas he removed his cannula. As to anti-spasmodics, he was a great believer in chloral, but it generally happened that different cases required different judgment.

Mr. JOHN BLAKEWAY said it generally happened that men in private practice did not get a case of affection until other people had done something at it in the way of an attempted cure. The first thing to do in his opinion was to make an examination of the mucous membrane. He had very often noticed that when a horse came in suffering from pain in the bowels, if the mucous membrane was not injected there was a good chance of recovery, otherwise he was generally suspicious. In regard to fomentation and enemas he was not much of a believer in them. He used to foment horses' bowels at one time, but he did not do so now. He preferred to apply some stimulating liniment if the animal was not making progress. He was not in favour of enemas. If they passed the hand into the rectum and in that way emptied it, it was much better. In regard to tapping, he had sometimes noticed that when they tapped on the near side they were apt to puncture the spleen. It was best to tap on the off-side. In regard to the use of physostigmine, he believed he once got a case of twisted bowels from it and that was why he had given it up.

Mr. TRIGGER said he could personally offer no opinion about physostigmine because he was "choked off" using it by the experience of a practitioner who had tried it with precisely the same result as had been narrated by Mr. Blakeway. At the same time he had heard gentlemen who opinions he very highly respected speak in favour of the drug. His sheet anchor was in such cases a dose of physic. He did not care for a solution of aloes. In the first place to get a good solution they had to boil the aloes, and they lost their

good qualities during the process; but he placed implicit reliance in the administration of a dose of aloes in the form of a ball. On the question of colic drinks, he pinned his faith on a dose of chloral given in oil. Mr. Trigger, proceeded to give an interesting personal experience of his own for the illustration, of which he produced portion of the intestine of the animal to which he was referring, and which was a valuable Springfield mare which died last summer.

Mr. STANLEY said he was surprised to hear that the old-fashioned remedy of hot fomentation was not recommended. He considered that if properly done it had saved many a hundred lives and would save many a hundred more. It was unwise to resort too much to medicinal methods to stop pain.

The CHAIRMAN, in closing the discussion, said he must first of all thank Mr. Gold for his very interesting paper. To him cases of stoppage of the bowels were always the cause of a very great anxiety, and moreover required a great amount of trouble and attention. The first thing he always did was to examine the bowels, then look for the injection of the mucous membrane and then to see whether the extremities were warm or cold. He next tried rectal exploration, and then gave a four-drachm dose of physic and some physostigmine. Of course there was physostigmine and physostigmine. He himself procured it in small quantities and procured it often, and he always swore by it. He gave aloes to increase the secretion, and if the pain increased, he gave morphia and afterwards opium. He was a firm believer in hot fomentation, but the difficulty was in country practice and sometimes in town practice, to get hot water, because the fomentation must be continued for a length of time, and must be done by two men with boiling water, wringing a rug out and holding it up at each side. He had had a great deal of experience in puncturing, and he was not particular himself as to whether it was done on the near side or on the off side. He generally punctured at the side where there was most gas. He was also a firm believer, in cases where they had impaction of the stomach, in giving hydrocyanic acid, from the administration of which he had seen great benefit derived.

Mr. GOLD then replied on the discussion. He said there was no doubt that shock to the system was the immediate cause of death in many cases, but he did not think that shock without rupture of the bowels could produce death. On the question of physic balls, their great effort, as he had said, was to get them dissolved as quickly as they could. He believed that when they gave drinks they stopped the action of the bowels for a considerable time, and for that reason he gave a ball, and then had the animal walked about, and then gave it some water. He would never give solution of aloes where there was tympany of the stomach. Respecting the cannula, he generally used one similar in size to those used in human practice. It was curved slightly, but he did not depend upon that to keep the bowel from receding from the cannula. It had a small piece of wire as thick as an ordinary probe, and at the end it was jointed. There was another piece of wire the same size as the end of the cannula, and by means of some thread and a screw he secured the cannula so that it was practically impossible for the bowels to recede. He had left the cannula in for hours, and without any bad results. It was a small contrivance which he had made himself, and he promised to submit it to the inspection of the members at the next meeting. As to the effects of morphia, he failed to see how they were to discern whether the animal was really suffering from the effects of intoxication or from pain.

On the motion of Mr. MALCOLM, seconded by Mr. DAWES, a very cordial vote of thanks was accorded to Mr. Gold for his paper.

*The Next Place of Meeting.*

It was unanimously resolved, on the motion of Mr. TRIGGER, seconded by

Mr. WM. CARLESS, that the next quarterly meeting of the Association be held at Stafford.

*Vote of Thanks to the Officers.*

Mr. TRIGGER moved that the best thanks of the Association be given to the president, the treasurer, and the secretary for their services during the past year. Their president had been most assiduous in his attention to the duties of his office, and had, moreover, treated them with great hospitality.

Mr. CROWHURST seconded the motion, which was carried unanimously.

The PRESIDENT, in returning thanks, said he regarded it as a great honour in having been appointed to preside over their deliberations, and he was happy to think that his efforts had been so far appreciated. His thanks were personally due to Mr. Blakeway and Mr. Dawes for the help they had given him in the discharge of the duties he had undertaken. He also begged to thank those members of the Association who had read papers at the various meetings, and, he might candidly add, produced such interesting discussions.

*Convivial.*

At the close of the business the members sat down to the annual dinner, which was served in an adjoining room. The retiring president (Mr. Merrick) occupied the chair, and during the short time which remained before the members departed for their various homes, a pleasant and enjoyable time was spent.

## LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE 32nd Annual Meeting and Dinner of the above Association, was held at the Grand Hotel, Manchester, on February 9th.

The PRESIDENT, G. Gartside Mayor, Esq., occupied the Chair.

There were present at the meeting, Messrs. W. A. Taylor, T. Greaves, S. Locke, A. Lawson, E. Faulkner, T. Hopkin, J. C. L. Jones, H. Hall, Chas. Blackhurst, J. H. Carter and F. P. Carter, W. Woods, A. H. Darwell, S. L. Buckley, J. McKinna, A. W. Mason, Professor Williams, H. D. Chorlton (Secretary), and several other members and friends.

The SECRETARY read letters of apology for non-attendance from the Lord Mayor of Manchester, Professors Young and McQueeen, Dr. Delepine, Owens College, Messrs. F. W. Wragg, President, R.C.V.S., F. A. Southam, Alderman John Roberts, and Professor Penberthy.

The SECRETARY read a letter received from the Central Veterinary Society respecting the Manchester Benefit and Defence Society, but it was proposed by Mr. Councillor Locke and Mr. W. A. Taylor, that the consideration of it should be postponed until the March Quarterly Meeting. Carried unanimously.

It was proposed by Mr. E. FAULKNER, and seconded by Mr. J. H. CARTER, that the Association should discontinue holding its meetings at the Blackfriars Hotel, and in future hold them at the Grand Hotel, Manchester. Carried unanimously.

Mr. E. H. Stent, M.R.C.V.S., Manchester, was nominated by Mr. W. A. Taylor, for membership.

*The President's Inaugural Address.*

Gentlemen:—My first duty when assuming the position of President of the Lancashire Veterinary Medical Association, is to thank you most sincerely for, and to express my very great appreciation of, the honor you have done me. No one more than myself knows with what mingled feelings I approach my task, but although very fully conscious of my lacking qualifications for the

high and honorable post I am now called upon to occupy, this I can most absolutely claim, that I yield to none of you in my sense of the responsibility now placed upon me. My sincere desire is to do my duty, as best I may, and I very gratefully recognise the multitudinous kindnesses I have received from all connected with the Association since I became a member of it.

An inaugural presidential address is required, as by a law of the Medes and Persians, of all assuming my present position, and as very many have done under similar circumstances before myself, I have felt considerably at a loss upon what topics to address you; but I rejoice greatly in the knowledge that this is the celebration of the birthday of our Society; this is our field day, our day for good fellowship and conviviality, our day (during the time being) for laying aside the cares of business offices—in fact our day out, and this being so, I congratulate myself, and you also, on the fact that you do not call for, you do not desire any Demosthenic ebullitions of eloquence, any startling manifestations of scientific erudition, any learned and profound harangue. I do not purpose to detain you at any length, or by prolonged remarks to in any way clash with preparation for that feast in, rather than of, reason, and that flow of . . . with something that is not soul, although it may have some connection with spiritual matters, which I presume we are all looking forward to as the dénouement of our gathering to-day. There are, however, some matters of interest to us all upon which I may be permitted to offer a few remarks.

If we as a profession have deserved well of our county in one particular respect more than another, I think you will all agree with me, that it is in regard to the contagious diseases of animals. Ever since about the year 1857, Jno. Gamgee lifted up his voice literally as that of one crying in the wilderness, in regard to the certainty of our importing the cattle-plague unless some national measures of precaution were adopted. I say ever since that time, veterinary surgeons throughout the British Isles, have been constantly labouring to impress upon the authorities and the general public, the paramount importance of strenuous repressive enactments in dealing with contagious and infectious diseases amongst our domestic animals; and, further, we can in all honesty claim that our crusade has been consistently and pertinaciously preached in the face of much influential opposition, and that the unanswerable topics of facts has over and over again, demonstrated to an absolute certainty that we can by such enactments, keep our stocks to all intents and purposes free from these most destructive scourges. No need for me here, to go into details with which you are all familiar, but one may, with I think pardonable pride, be allowed to point out that in every instance when the advice tendered by the veterinary profession in this connection has been acted upon, most satisfactory results have ensued. Witness the cattle-plague itself, which, after decimating our herds nearly 30 years ago, has been an almost unknown quantity ever since. Witness the practical extinction for some years of eczema epizootica, also the almost conclusively demonstrated sweeping away of pleuro-pneumonia, the immunity of the horses of the British Army from glanders, also the oft repeated prompt diminution in the number of cases of that dread malady, hydrophobia, when those repressive measures which we are constantly advocating are even temporarily put in force—imperfectly and partially though this is done—and what is our reward from a grateful nation?—the proverbial reward of virtue, the *mens conscia recti*, the satisfaction of knowing that we have led or driven popular feeling, to the vast benefit of the community at large; but I do bitterly, though most absolutely believe, to our own great pecuniary loss. And how we have to stand on one side and see our teachings carried into effect by men who have not the slightest real qualification for the work, unless we consider as such, that which is too often the most potent of all qualifications for public office, political influence; and just now, when an enormous

amount of work is being required from the veterinary staff of the Board of Agriculture, in reference to swine fever especially, it seems most probable that the retiring veterinary director (Professor Brown), may be replaced by a "non-professional" man. One turns with a sense of grateful relief from noting the treatment of our profession by the Imperial Government, to dwell for a moment on the more enlightened policy pursued by some municipal bodies; it is satisfactory to know that in this very city—this inland seaport of Lancashire—a veterinary surgeon holds a responsible position under the "City Fathers," as Superintendent of our meat supplies, and I make no apology for mentioning in this connection the name of one of the members of this Association, Mr. Councillor Locke, who was, I believe, largely instrumental in inaugurating this appointment. Beyond mentioning the fact that Edinburgh has also a veterinary surgeon similarly appointed, I will simply express the hope that the old adage, that what Manchester thinks to-day, etc., etc.,may speedily be verified in this case. Now having just glanced at what the powers that be, are doing for us, in return for what we have done for them, we may ask what were we doing for ourselves? As you are all aware, very great changes have recently been made in the system of our collegiate teaching, and our professional examination. Some of those changes I take it, we shall all most heartily approve of, while opinions may fairly be divided as to the advisability of this. Increase in the requirements of matriculation has long been necessary, and we must all cordially welcome the steps in the right direction our council has recently taken. The very unsatisfactory social status that has until recent years been accorded to our profession, has been in the largest manner due to the lack of education and culture among the members; but we have now for some time been gradually freeing ourselves from that reproach, and may I hope that in the near future all our graduates will possess the education at least of a gentleman. As you are all aware, the period of collegiate study has recently been increased from three to four years, and although lacking the imperative necessity for us to keep raising our standard of professional training, still there are many of us who are inclined to ask if the average emoluments of a veterinary surgeon are such as to render any greatly increased expenditure in training quite justifiable, and whether the desired end might not have been attained by increasing the stringency of the examination without compelling attendance at college for an additional year. The introduction of a written examination in addition to the *viva voce* is another reform which I think meets with general approval, and it certainly does give a nervous student a better chance of displaying his knowledge. I presume you have all heard the story—I think it is of Sir Astley Cooper—of a medical student who said he felt too nervous to answer a certain question, whereupon Sir Astley enquired if he was sure he did not feel too ignorant. Probably in the majority of cases, alleged nervousness is really a cloak for lack of knowledge; still I think there can be no reasonable doubt that there are some intelligent and well informed students who, from peculiar nervous idiosyncrasy, are absolutely unable to do themselves anything like justice, when face to face across a small table, with that awful ogre of the student's life, an examiner. Turning to the field of operative surgery, the name of Professor Smith at once occurs to all of us, and it may not be regarded as out of place here, to express profound regret that the inexorable fiat of military regulation has removed him from a veterinary school at Aldershot, when he was doing such valuable work, to a sphere where his opportunities for original research will be necessarily much circumscribed. Among the various operations with which the Professor's name is associated, the most notable one is the incision of the hoof for the relief of lameness arising from sidebones and acute laminitis. In connection with the latter, I was pleased to notice that in a paper read by Mr. Nelder, F.R.C.V.S., at a recent meeting of the Western

Counties Veterinary Medical Association, that gentleman speaks of his very favourable results in over a dozen cases. Professor Smith's operation for the attempted removal of roaring, by providing a fresh source of nerve supply to the larynx, will not be forgotten by those who saw him operate within this city not six months ago, and we can only hope that the daring and originality of the operation may ultimately meet with merited success. As an old standing enthusiastic advocate for the use of chloroform in veterinary practice, I may be permitted to express my very great gratification to notice how much more general, recently, has become the use of that heaven-sent blessing to suffering nature. In medical therapeutics, one notes with satisfaction the now thoroughly established value of potassium iodide in actinomycosis, and again thanks to Professor Smith, the now generally recognised value of Cannabis Indicus, as a simply unparalleled sleep producer in the horse. Gentlemen, I feel that I have occupied quite enough of your time by my discursive, but I hope not entirely unsuggestive remarks. I thank you one and all for your kind and patient hearing. I trust you all, as well as many who have not yet arrived, I will shortly meet around our festive board, and that the the year 1894, may be to the Lancashire Veterinary Medical Association, at any rate, not the least satisfactory of its existence, and to all its members and friends. To our members I would say please support the officers all you can by your presence, and particularly in our discussion during the year, and now gentlemen thank you all once more, and in the other room may good digestion, &c.

Mr. THOS. GREAVES, in a few chosen words, proposed a vote of thanks to the President for his excellent address.

Professor WILLIAMS, of Edinburgh, seconded the proposition. Carried unanimously.

*Dinner.*

Later on the members and friends partook of dinner, which was followed by the usual loyal toasts, interspersed by numerous songs and recitations, which greatly added to the evening's enjoyment.

The PRESIDENT proposed the toasts of the Queen, the Prince and Princess of Wales, and the rest of the Royal Family, with a few appropriate remarks.

Mr. J. H. CARTER, in proposing the toast of the Army, Navy, and Auxiliary Forces, said: I assure you it affords me great pleasure to propose this toast. It is some 20 years since I was in the Auxiliary Forces, therefore I cannot say very much about them. With regard to the Army, we are, I am pleased to say, in harmony with all the Foreign Powers, and may it be so for many years to come. I do not know much about the Army. There is, however, one thing I may mention, and I do so with regret, and that is, with regard to the recent riot at Chatham Barracks. There must be some cause for these riots, and I think from what I have read, it is owing to the laxity of punishment. It is, I think, a mistake that flogging was abandoned in the British Army. With regard to our Navy, of course we are all very proud of it. There have been numerous attacks upon the Government with respect to its administration, but we are assured by a speech made a short time ago by Earl Spencer, that the Government was obliged to maintain and strengthen the Navy to that point of perfection that the latter would be able to defend, not only the British Isles, but the whole of our vast empire. I consider it would be impolitic to acquaint Foreign Powers with our shipbuilding. It is obvious that a disclosure of the precise extent of our work would acquaint Foreign Powers, and it also adopts the system of checkmating—that is, building ship for ship. Regarding the Auxiliary Forces, as I said before, it is about 20 years since I retired from the Volunteers. I do not know much abont them now. I did at that time. I ask you to drink most loyally to the Army, Navy, and Auxiliary Forces.

Veterinary-Lieutenant MEREDITH, in responding, said: Mr. President, Vice-President, and Gentlemen, I fancy my remarks will fall flat after Mr. Allen's sweet tones; however, I thank you deeply for associating my name with the toast Mr. Carter had proposed. My remarks, I take it from our President, should be brief, so I will not detain you long. As regards the Army, I think they are still made of the same stuff as their fathers, viz., honesty and pluck, and this we have seen of late in Matabeleland. As respects the Navy, the senior service, we have not had much opportunity of late of letting them show their talent and worth, but I have no doubt if they were called upon to do their duty they would do it. For my part I am a poor sailor. I would just as soon go to sea as to jail. I assure you it would be a great punishment to me to go to sea. Respecting ourselves, I prefer the professional branch of the service. I have seen them all, and would not change for either of them.

Mr. W. A. TAYLOR, in proposing the toast of the Medical Profession, said: We are honoured by the presence of only one member, I am sorry to say, of the medical profession. That aspect of our gathering is not up to our usual form, and inasmuch as the gentleman who graces the festive board on behalf of the medical profession comes from some distance, I wish with your permission to acquaint him with the fact that we are often honoured on these occasions by the presence of luminaries in his profession hailing from Owens College, and the Manchester Pathological and other Medical Societies of this city. Circumstances over which those gentlemen, I believe, have had no control, have prevented them from being present this evening. Dr. Delepine, although absent in body, is present in spirit; so also are other members of the profession who have been present on former occasions. Nevertheless, I wish to place upon the shoulders of Dr. Kingsbury the onus of responding for a profession second to none in the world. It has for its object the cure of frames in which the souls of men in this world are encased, and next to that of the ministry I think there can be no nobler vocation than the one of ministering and attending to the sick and lame of the human species. Following that, and I may be traversing a divergent path, I claim is the position of the veterinary surgeon. He has to attend and prescribe for the maimed and the suffering dumb animal, and though we have been charged in certain high quarters with want of feeling and proper appreciation of the suffering of dumb animals, I declare that charge to be a libel on the profession. Veterinary surgeons of the present day, I hold, are sufficiently educated and have sufficiently feeling hearts to place their patients in a position of the least possible suffering. Well as the members of our profession know, veterinary science as a science is very young, and after its birth in this country it depended for sustenance to a very great extent upon many liberal members of what we always have had the honour, I hope for all times we may have the honour, of calling our sister brethren. They helped us in our swaddling clothes, when we were in breeks, and so until we attained our majority, and they are helping us now; and I hope that some of them will, in return, acknowledge that the poor veterinary surgeon has in some few instances been of assistance to the profession of human medicine and surgery. Hand-in-hand with our sister profession, I think pathology in the light of the prevention and suppression of diseases communicable from animals to man may be regarded in that light. I think there is before both professions acting in consort a bright and a noble future. When we are told that that curse of the bovine animal, tuberculosis, is so easily transmitted from animals or their products to man, it is essential, I think, that some supervision on the part of the veterinary profession should be exercised under proper authority as to the fitness of the flesh of animals slaughtered for human consumption, and has been alluded to in the President's address this afternoon. We have, I am

bound to say, and I know my friend will excuse me in saying so, through the instrumentality in the first instance of agitation on the part of the Lancashire Veterinary Medical Association, and in the second place through the indefatigable exertions of our friend and colleague Mr. Councillor Locke, been able to displace as the inspector of meat for what we may term the second city of our country—I say we have been able to displace an ordinary butcher, and in lieu of him we have succeeded in obtaining the appointmeut of a qualified veterinary surgeon ; and I think we of this society may be pardoned if in our pride we exult at such a resnlt. When we are told that tuberculosis is so easily and so often communicated from the lower animals to man, I feel that that disease alone would warrant the installation of a veterinary surgeon in the position of meat inspector in all boroughs and counties of this country. Far be it from me to dispute the right of the medical man to decide what is fit for human consumption, but he will concede to us, no doubt, the right to determine the food that our patients shall subsist on; but in determining as to whether the carcase of a given animal (I look to the lower animals, of course), is the host of disease acknowledged to be communicable from animals to man, I say he should then be associated in his investigations with a veterinary surgeon before deciding upon the case.

Dr. KINGSBURY, in responding, thanked the members very sincerely for their cordiality in associating his name with the toast of the medical profession. He exceedingly regretted he was the only medical man present, but it was the medical profession's loss. While he agreed with Mr. W. A. Taylor's remarks that the medical profession was a sister profession, he thought that both professions should be regarded as one, as both were specialists. With respect to Mr. W. A. Taylor's remarks that the veterinary profession had been charged with cruelty to their patients, he said such charges were strange to him, but charges of cruelty were frequently made against the medical profession. He spoke of the rapid strides both professions had made within the last few years, and that although the veterinary profession had received no reward for the good they had done society, they would not regret their pecuniary loss if they advanced their science and their minds for the good of the human race. He said they were all largely indebted to Mr. Councillor Locke. He hoped the members would see their way to contribute something to the British Institute of Preventive Medicine at a future time. He asked the members to drink most heartily to the success of the veterinary profession, coupling with it the name of Professor Williams.

Professor WILLIAMS, in responding, said: I assure you I feel exactly as the Professor of the Clinical College did when the National Veterinary Society was entertained by the Lord Provost and Council of Edinburgh. He said "I would much rather perform a surgical operation on any person present than make a speech." I feel in that same condition, because what I might have said has already been said by the first two gentlemen, Mr. W. A. Taylor and Dr. Kingsbury. Nevertheless, I happened to have lived during an earlier period than some of you, but before I say anything about that I may say that Mr. Wragg, President of the Royal College of Veterinary Surgeons, is not here this evening ; he would have represented our profession both in size, appearance, and in eloquence. He would have done greater justice to the toast than I could. However, I remember the days when glanders and pleuro-pneumonia were a source of income to the veterinary surgeon. We have done much for preventive medicine, we have abolished many diseases, but where is our reward ? It is all very well to do what we can for the human race and the lower animals, but we have to live. I maintain the public does not appreciate what we have done for them in any way, and more than that, the Government have not appreciated us. We are on the point of being ignored. The profession should resist this. We have done much for the prevention of diseases

among our own patients, and we should maintain our rights in this direction. Look at the swine plague. We are being superseded. It is right and proper to be patriotic ; at the same time where are you going to get bread and butter for your children ?

Mr. E. FAULKNER in proposing the toast of the municipal authorities said: I feel somewhat handicapped by our President, owing to his very charitable manner in complimenting me upon being eloquent before I have made an attempt. Seeing that the toast has been entrusted to me I have both honour and pleasure in proposing that we drink to the good health and success of those who devote time and thought to the due performance of their civic duties, who endeavour to serve the established weal, and make strenuous efforts that our lives shall be better, healthier, and happier than they have been in the past. By these efforts I think they proved themselves benefactors, good citizens, and well worthy of all the honour we can do them. With this toast I have great pleasure in coupling the name of Mr. Councillor Locke, a gentleman thoroughly well known in the profession, and I venture to assert well known within the precincts of the Town Hall. We are very much indebted to him for the tact, judgment, and endeavours he has made to carry a point which has been pending for a great number of years, and I am sure Mr. Locke has the very best wishes of all of us for the great benefits we have derived since his entry upon his duties as Councillor. I ask you to drink to the health of the municipal authorities, coupling with it the name of Mr. Councillor Locke.

Mr. Councillor LOCKE in responding said: I regret exceedingly that I am the only member of the municipal authorities to be able to respond to that toast. We had hoped that this dinner would have been graced by the presence of the Lord Mayor, and I feel sure that if he had come, the veterinary profession would have given him a right royal welcome. Alderman J. F. Roberts is unwell, I am sorry to say, or he would have been present with us. He is Chairman of the Markets Committee, a committee that do a good deal towards the inspection and protection of the meat. With regard to the meat supply, I beg to thank Mr. Faulkner for the kind manner in which he has spoken of the duties appertaining to the office of Councillor, and also of my efforts to further the interests of this profession. You all know that since I have been a member one very great change has taken place. I do not claim it has been due to myself. I believe it had been mooted before, but it wanted someone to back it up. I am pleased to say some of the members of the Markets Committee very ably supported me, with the result that a veterinary surgeon has been appointed chief inspector of meat in Manchester. We have under consideration at the present time an assistant inspector. We find the work cannot be done in that efficient manner it ought to be done, and it has been decided that the assistant inspector should be a butcher. I, of course, could not listen to this. I told the Chairman and Committee that I should most certainly oppose the resolution, and I did so, and I am pleased to say I received the almost unanimous support of the Council. That subject will be referred within the next fortnight to the Committee, and I assure you I shall have very great opposition ; at the same time I felt that by pegging away and showing the Committee the desirability in this case of appointing a veterinary surgeon to that very onerous post. I showed to them that it was a moral impossibility for a butcher to hold his position as well as a veterinary surgeon. I believe I can carry the point. Of course it will be a happy day for me and for you when we know the meat inspector is a veterinary surgeon. Regarding the municipal duties generally, I assure you they are not to be treated lightly. We are supposed to be members of about three Committees and about eight or nine sub-Committees, meeting two or three times a month, besides ordinary council meetings, and of course the necessary journeys we have to make occasionally.

Mr. THOMAS GREAVES, in proposing the toast of the President, said it was fortunate for him that it was a little toast, and not so extensive as Mr. Locke had to respond to. He considered the President was the right man in the right place, and that his year of office would be a credit to the Association.

The PRESIDENT in responding expressed his gratitude to the members for their very great kindness to him, since he became a member of the Association.

Mr. DACRE, in proposing the toast of the Visitors, said he had proposed various toasts during his membership of the Association, but never before that of the Visitors. He had great pleasure in doing so, as he thought that the prosperity of the Society had been largely due to the presence of professional gentlemen and others at their yearly meetings. He said that none of the visitors were more welcome than those of the medical profession, and thought the social intercourse of professions so allied as the medical and veterinary had been of great benefit to both. He therefore asked the members to drink to the toast with all honours to the guests, coupling with it the names of Mr. Smelt and Mr. Usher.

Mr. SMELT, in responding, said he believed the general public did recognise the services which had been rendered by the veterinary profession, but he could not answer for the Government. He considered the veterinary profession had attained its present position through its own energy. He was exceedingly obliged to the members for the honour in coupling his name with the toast.

Mr. JONES, in a few chosen words, proposed the toast of the Ladies, and Mr. Buckley responded.

## ROYAL AGRICULTURAL SOCIETY.

AT the monthly council meeting held on March 7th, Sir JOHN THOROLD reported that the Special Committee on Abortion in Cattle had met on the afternoon of Monday, March 5th, and had examined three witnesses. A considerable number of replies had been received to the Society's circular letter of inquiry upon the subject, and these were in the hands of Professor Brown for examination and analysis. The Special Committee would again meet on Monday, April 2nd next, when further witnesses will be examined. A communication had been received from the Highland and Agricultural Society of Scotland, forwarding copies of a resolution passed by the Board of Directors on the subject of the fraudulent sale of foreign meat, and suggesting that the Society should take similar action. After some discussion, it had been resolved to recommend that the following resolution of the Highland Society be adopted by the Council and forwarded to the Board of Agriculture :—

"That the council desire to urge upon the Board of Agriculture the extreme importance of taking immediate steps to prevent the sale of foreign meat in name and form of British meat, and, if necessary, of calling upon the Government to introduce such a measure as would enable the authorities to effectually put an end to this fraudulent practice."

The Examiners in Cattle Pathology for the Diploma of the Royal College of Veterinary Surgeons in 1893 had reported that the following gentlemen, placed in order of merit, were entitled to the medals offered by the Society :—

(1) Mr. H. T. Sawyer, Veterinary-Lieutenant, A.V.D.

(2) Mr. E. T. Thorburn, Morton House, Frome, Somerset.

The committee recommended, therefore, that the Society's large medal be given in silver to Mr. Sawyer, and in bronze to Mr. Thorburn.

Professor BROWN had presented the following report :—

*Pleuro-Pneumonia.*—No case of this disease has been discovered in Great Britain since the end of last year, but several suspected csses were reported,

and nine of the suspected cattle were slaughtered, and found on *post-mortem* examination free from the disease.

*Swine Fever.*—During the first eight weeks of the present year no less than 954 pigs died from this disease in Great Britain, as compared with 738 in the corresponding period of last year. The number of swine slaughtered by order of the Board of Agriculture as diseased or having been exposed to the risk of infection since the beginning of the year has been 7,407, and, in addition to these, 124 suspected swine were slaughtered but found free from swine fever on *post-mortem* examination. These cases of swine fever were distributed over forty-eight counties, viz., forty-two in England, five in Wales, and one in Scotland.

*Anthrax.*—This disease still continues to increase. There have been 117 fresh outbreaks reported in the first eight weeks of the present year, and 228 animals attacked, as compared with seventy-one outbreaks and 200 animals attacked in the corresponding period of last year. These fresh outbreaks were distributed over twenty-nine counties in England, three in Wales, and ten in Scotland.

*Glanders and Farcy.*—The recently published returns relating to this disease show some decrease. There have been 185 fresh outbreaks, and 241 horses attacked, as compared with 247 outbreaks and 442 horses attacked in the corresponding period of last year.

*Rabies.*—There have been twenty-five cases of this disease reported in Great Britain in the eight weeks, as compared with eleven in the corresponding period of last year. These cases of the disease occurred in five counties in England and three in Scotland.

### *Swine Fever.*

In reference to swine fever, two very important Orders have recently been issued by the Board of Agriculture, but they have only been in operation since the 18th February:—(1) No. 5,156.—The Swine Fever (Infected Areas) Order of 1894, which is in force in those districts named in Order 5,159. The effect of this Order is to close all markets and sales of swine, except for slaughter, and then only with a licence of the local authority, and to prevent the movement of swine out of those districts named, without a licence of the receiving authority, and then only for immediate slaughter, or for some special purpose. (2) Order 5,161—Markets and Fairs (Swine Fever) Order—closes the markets for swine, except for slaughter, in those other parts of England and Wales which are not named in the Infected Areas Order (5,159), the only districts which are not under restrictions being those named in the schedule to that Order. The Markets and Fairs (Swine Fever) Order (5,161) does not apply to Scotland, as the disease appears to be mainly confined to the neighbourhood of Glasgow, around which an affected area has been declared.

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## Notes and News.

PATHOLOGICAL RESEARCH IN QUEENSLAND.—The government of Queensland has decided to establish a Stock Institute at Brisbane, for the purpose of pathological and bacteriological research.

AN AGED MARE BREEDING.—It is announced that the Duke of Westminster's thoroughbred mare, Lily Agnes, at the mature age of twenty-three years, has given birth to a foal which is own brother to Ormonde.

OPERATION ON A LION.—In December last, in New York Veterinary College, the operation of putting up a fracture of the femur of a lion was successfully performed, the animal being rendered tranquil by a hypodermic injection of morphine.

PASTEURISM AT PADUA.—Statistics of the Antirabic Institute of Padua, of which Dr. De Giovanni is Director, recently published by Drs. Zaniboni and Bonetti, show that in 1891 the total number of persons treated was 57, and in 1892, 48. No death occurred in either series.

REMOUNT HORSES IN PRUSSIA.—The following figures show the number of horses purchased by the Commissioner of Remounts in the Prussian State during the year 1893:—E. Prussia, 5,298 head; W. Prussia, Posen, and Silesia, 1,110 head; Brandenburg, Pomerania, Mecklenburg, and S. Germany, 875 head; Hanover, Westphalia, Oldenburg, Saxony, and Hesse, 1,268 head, making a total of 8,551 head of horses.

VETERINARY SURGEONS IN THE RUSSIAN ARMY.—The number of veterinary surgeons in the Russian Army is 315, made up as follows:—6 veterinary generals of division, and 19 veterinary-brigadier generals, being a total of 25 general officers; 64 veterinary colonels, 45 veterinary lieutenant-colonels, 36 veterinary majors, being a total of 145 superior officers; 24 first-class veterinary captains, 121 second-class veterinary captains, a total of 145 subaltern officers.

DOG-CATCHING AT GLASGOW.—As a result of the decision of the Glasgow authorities to give a guinea reward to the policeman who captures the maximum number of "useless and ownerless dogs" before May 1st, hundreds of such have been secured and drowned; and towards the end of February, upwards of 500 animals were awaiting claimants at the city police-stations. Equipped with lassoes of hemp, the men have entered the competition with zest, and one officer has twenty-three dogs to his credit.

VETERINARY SURGEONS IN THE SPANISH ARMY.—In the Spanish Army there are 155 veterinary officers in the Peninsula and the Colonies. Of these there are one first-class veterinary sub-inspector ranking as colonel, 2 second-class veterinary sub-inspectors ranking as lieutenant-colonels; 8 veterinary majors ranking as commandants, 63 first-class veterinary surgeons ranking as captains, 71 second-class veterinary surgeons ranking as first lieutenants, 10 third-class veterinary surgeons ranking as second lieutenants.

THE USE OF TUBERCULOUS FLESH AS FOOD.—Dr. Deshayes revives in the *Revue d'Hygiéne* the question of the danger of the use of meat from tuberculous animals as food, and gives some interesting facts concerning it. The Comité Consultatif d'Hygiéne has decided that, unless an animal is thoroughly invaded by tubercles, it is not to be condemned, but the diseased portions are to be removed and the rest sold for food. Dr. Deshayes protests vehemently against this practice. According to M. Lefevre, veterinary surgeon at Havre, the minimum of tuberculous animals killed at the principal French slaughterhouses amounts to 4,000; of these, only 1,600 were condemned; therefore, 2,400 were offered for sale after the parts presenting tuberculous lesions had been removed.

CANADIAN CATTLE.—The last despatch which the Canadian Government have forwarded to the Imperial authorities on the question of the scheduling of Canadian cattle, is said to be remarkable for the pointedness of its language. After reciting the history of the controversy, and quoting all the medical evidence that is forthcoming, the despatch refers to the statement made by the Imperial Board of Agriculture, to the effect that cases of pleuro-pneumonia have existed in Canada during the past few years. The Dominion Government say that this statement clearly insinuates a charge of concealment, which justifies the request that they shall be furnished with the name of the authority for it. In the meanwhile the allegation is met with the declaration that it is entirely devoid of truth.

PASTEURISM IN RUSSIA.—Dr. Goldenbach, chief physician to the Alexander, the Third Hospital at Moscow, to which a Pasteur Institute is attached, reports that the number of persons treated there during 1892 was 907—613 males, 294 females. Of these, 178 were bitten by animals proved experimentally to have been rabid; 439 by animals proved to have been rabid by the results of *post-mortem* examination or by veterinary observations; and 290 in which the existence of rabies was made probable by the circumstances of the bite. The animal which inflicted the injury was in 769 cases a dog, in 45 a wolf, in 70 a cat, in 11 a horse, in 8 a cow, and in 2 a pig; in 2 cases the biter was a human being. Of the 907 patients, 6 died, giving a mortality of 0.66 per cent.; 6 cases in which death occurred before the completion of the treatment, and 12 in which treatment was prematurely discontinued are not included. One patient in the latter of these groups has since died.

HORSE BREAD V. OATS.—At the last meeting of the National Society of Agriculture of France, Mons. de Dampierre spoke upon the substitution of bread for hay and oats in the feeding of domestic animals. The principle that he follows is by replacing 6½ lbs. of hay or oats by 2 lbs. 2 oz. of bread. Mons. Lavalard, director of the Compagnie des Omnibus, has replied that he does not believe that it is possible for animals to work which are fed with bread. He made an experiment, he says, and at the end of nine months the company's horses could not do with this food. He thinks that it would be necessary to give bread not containing more than 10 to 14 per cent. of water, that is, an equal quantity to that contained in oats. He further believes that the bread can be given only as a supplementary ration in exceptional cases. Mons. Pluchet replied to this, that he has substituted in the rations of his horses 11 lbs. of bread to 8 lbs. 13 oz. of oats, being a saving of about 3d. per day per head. The bread was made of barley and rye, at about ½d. per lb. The same experiment was made for cattle by substituting 11 lbs. of bread for 1 lb. 3 oz. of cake, being a saving of 1½d. per head per day. From these various opinions it appears that bread can only replace oats and hay in the feeding of horses which have slow work, and that it is not suitable for fast-going animals.

THE HUMAN HAND AND THAT OF THE MONKEY.—At the meeting of the Société de Biologie on March 3rd, M. Regnault stated that the fingers of the human hand are normally curved, the index and the middle fingers being concave towards the ring finger, and the ring and the little fingers presenting a like concavity, looking towards the middle finger. These curves are constant, and are found even in the fœtus of eight months. They are thus quite independent of accidental causes, such as particular forms of manual labour, and they have been reproduced by all great sculptors. On the other hand, all monkeys, even the anthropomorphic varieties, have quite straight fingers. The reason for this difference lies in the faculty possessed by man of opposing the thumb to the fingers; this movement of mutual opposition of the thumb and fingers produces naturally the outward concavity of the little and ring fingers, and the inward concavity of the middle and index fingers. Even the anthropoid monkey possesses this faculty of opposition only in a rudimentary degree. He seizes an object either between the palm of the hand and the four last fingers flexed, like a lead-poisoned paralytic, or, if the animal wishes for more precision, between the index finger and the pulp of the thumb. This mechanism has been verified by M. Regnault in three ourang-outans, which he examined carefully. Up to about the age of two years, children employ the same mechanism as monkeys. Be it further noted that in the monkey the palm of the hand is longer and thinner, the thumb is smaller, and the space between the thumb and the index finger is narrower than in man.

CHEMICAL DISHORNING.—Prof. I. P. Roberts, of Cornell University, gives the following directions for what, after carefully experimenting, he considers "by far the easiest, most humane and most certain method of securing horn-less cattle." This is the use of caustic potash, which may be had at any drug store in the form of round sticks, about the size of a lead pencil, and should be kept from exposure to the air, as it rapidly absorbs moisture. The directions are :—The best time to apply is early in the life of the animal, just as soon as the little horns can be distinguished by the touch. The hair should be closely clipped from the skin and the little horn moistened with water, to which soap or a few drops of ammonia have been added, to dissolve the oily secretion of the skin, so that the potash will more readily adhere to the surface of the horn. Care must be taken not to moisten the skin, except on the horn where the potash is to be applied. One end of a stick of caustic potash is dipped in water, until it is slightly softened. It is then rubbed on the moistened surface of the little horn. This operation is repeated from five to eight times, until the surface of the horn becomes slightly sensitive. The whole operation need take only a few minutes, and the calf is apparently insensible to it. A slight scab forms over the surface of the budding horn, and drops off in the course of a month or six weeks, leaving a perfectly smooth poll. No inflammation or suppuration has taken place in any of the trials we have made. The results of these experiments warrant the following recommendations :—(1.) That for efficiency, cheapness, and ease of application, stick caustic potash can be safely recommended for preventing the growth of horns. (2.) The earlier the application is made in the life of the calf, the better.

MULE BREEDING IN THE UNITED STATES.—The report of the American Bureau of Animal Industry contains a paper on breeding mules. The following note is given as to the several varieties of jacks in the United States :—"We have the Catalonian, the Andalusian, the Maltese, the Majorca, the Italian, and the Poitou—all of which are imported—and the native jack. Of all the imported, the Catalonian is the finest type of animal, being a good black, with white points, of fine style and action, and fron 14½ hands to 15 hands high, rarely 16 hands, with a clean bone. The Andalusian is about the same type of jack as the Catalonian, having perhaps a little more weight and bone, but are all off colours. The Maltese is smaller than the Catalonian, rarely being over 14½ hands high, but is nice and smooth. The Majorca is the largest of the imported jacks, the heaviest in weight, bone, head, and ear, and frequently grows to 16 hands. These are raised in the rich island of Majorca in the Mediterranean Sea. While they excel in weight and size, they lack in style, finish, and action. The Italian is the smallest of all the imported jacks, being usually from 13 to 14 hands high, but having a good foot, bone, and weight, and some of them make good breeders. The Poitou is the latest importation of the jack, and is little known in the United States. He is imported from France, and is reported to be the sire of some of the finest mules in his native land. These jacks have long hair about the neck, ears, and legs, and are in some respects to the jack race what the Clydesdale is to other horses. He is heavy set, has good foot and bone, fine head and ear, and of good size, being about 15 hands high. The native jack, as a class, is heavier in body, having a larger bone and foot than the imported, and shows in his entire make-up the result of the limestone soil and grasses common in this country. He is of all colours, having descended from all the breeds of imported jacks. But the breeders of this country, seeing the fancy of their customers for the black jack with light points, have discarded all other colours in selecting their jacks to breed to jennets, and the consequence is that a large proportion of the jacks in the stud now, for mares, are of this colour."

THE JOURNEY OF A CAT.—Wonderful stories are on record of the homing instinct of animals, and especially of the dog and cat, and the latest with regard to the latter, is given by a medical man at Lincoln, in the pages of the *Lancet*. He writes:—The cat, the subject of this short letter, was born and reared in one of two semi-detached houses on a hill overlooking the well-known and historic racecourse, the Carholme of Lincoln. This house was occupied by a military medical gentleman and his family for six or seven years, and the cat was so great a favourite that last December, when the gentleman removed to Forest Hill, London, the cat was taken to the new home by one of the family. It was put in a comfortable basket and conveyed to its destination by train. For about a month the cat seemed to have been contented and happy, but it was noticed that it ate largely and slept much. Towards the end of the month, however, the cat disappeared, and, after a fruitless search for it, pussy was given up as irretrievably lost. This event took place in the beginning of the severe frost and snowstorm, and before the storm was over the cat turned up at its old home in Lincoln, where, one morning, the gentleman who occupies the other half of the detached villa was aroused by the loud mewings and noise made by the cat to gain admittance to its old, but now empty, home. The gentleman, who knew pussy well, gave it a kind reception, and with him it now passes about a couple of hours daily and spends the rest of the time roaming at will over its old beloved haunts. It is computed that the animal performed the journey in eight days, travelling at the rate of over seventeen miles per day; and, although the cat was travel-stained and rather thin in flesh, still he was in fairly good condition when it reached Lincoln. When one takes into consideration the distance between Forest Hill and Lincoln, nearly 140 miles, the intense severity of the weather, and the thousand obstacles which the poor creature must have encountered on its way across London and down to Lincoln, the journey is a marvel for so small and weak an animal to have accomplished; but the most wonderful thing of all is what might be called the geographical knowledge possessed by the cat, which enabled it steer a straight course to Lincoln, although it had been taken to Forest Hill blindfolded. This journey displays the great love the cat had for its old home and verifies the old opinion that cats are more attached to places than to people.

## Correspondence.

### THE NATIONAL VETERINARY BENEVOLENT AND MUTUAL DEFENCE SOCIETY.

SIR,—The unjustifiable animadversions in the editorial of *The Veterinarian* for 1st February, written by Professor Macqueen, display lack of knowledge of fact (on his own statement). It is a reflection upon the above societies, and the method adopted by its officers in conducting its business. Such comment being calculated to mislead the profession, we feel it to be our bounden duty to make the following statement:—

*When, Why, and How the Society was Formed.*—It was established in 1865, by a deputation of the officers of three or four veterinary medical societies, who, after many meetings and much consideration, formulated a scheme, and drew up rules, &c. This conference was consequent on a paper read by Mr. Friend, V.S., before the Liverpool Veterinary Medical Association, on "The Liability of Veterinary Surgeons." The committee was composed of earnest, experienced, thoughtful men, who had seen that such a society was greatly required; they had only the best interests of the profession in view. It seems the professor and others are actually ignorant of the name even of the Society. There is no Manchester V.B. Society, and never was; it is the National V.B. and M.D. Society.

It has ramifications all over England, Ireland, and Scotland. We have ample evidence during nearly 30 years' experience that the two societies can work well and satisfactorily conjointly; there has never been the slightest friction from beginning to end. Everyone who is a well-wisher, everyone who is a sincere friend, who desires to assist the Society can do so, and is hereby invited to assist by becoming members of the Society, not by showing the bickering spirit exhibited in this editorial—not by trying to tear the Society to pieces and deprecating the success which he has never once raised his little finger to assist.

*The Means Taken to Establish it.*—When the above Society was first formed, a circular setting forth its object and importance was sent to every member of the profession. This method of publishing our Society has been repeated more than a dozen times during these 29 years. The claims and importance of the Society have been advocated repeatedly before every veterinary medical association in England, Ireland, and Scotland; we have held our annual meetings in London, Edinburgh, Birmingham, Leeds, Liverpool, Manchester, and other large towns. Our meetings are always published in the journals, and full reports given. These meetings are always conducted in the light of day. Our treasurer has travelled more than 2,000 miles expressly to proclaim its existence, and has got members from every part of England, Ireland, and in Scotland. Every year we have two or more articles in the journals. So if the Professor Macqueen is in ignorance, and knows none of the facts, he is to be pitied. The fault is his own, and it convicts him of being unacquainted with the contents of his own journal. I would beg you all to read those articles in *The Veterinarian* for 1864, and especially those for 1890, pages 785, 281, 649, 864, and 266, and many others in other years. A motion was put and carried at our last meeting to apply to the four colleges to be allowed to hang up in each college a board with the name and object of our Society, and, further, to approach the principal of each college, and respectfully request that he will kindly consent to introduce into one or other of his lectures, a favourable mention of the object and importance of our Society. The editor of *The Veterinary Record* has kindly offered to give us a space for our use once a month. What more could our learned Professor Macqueen do to remove the apathy which we all know exists to so great an extent in our profession?

*The Financial Statement.*—This statement has been made out annually, and printed in the *Veterinarian*, *Veterinary Journal*, and *Veterinary Record*, showing every shilling received and every shilling paid. The accounts have been regularly audited by the appointed auditors; we have dealt with some dozens of cases of benevolence, and some scores of cases of defence; we have defended cases in London, Leeds, Birmingham, Cardiff, York, Wolverhampton, Liverpool, Manchester, Macclesfield, Knutsford, Rugby, Melton Mowbray, Sheffield, and many other places, too numerous to mention, with satisfactory results, having been unsuccessful in only one case. Yet in the face of this, this learned professor asks the audacious question, "What facts in its history occur to us?" Emphatically we say it, "none." What inferences can be drawn and what influence can be wielded, I would ask, by such pernicious editorials. Surely, men are not so ignorant as they seem? or is it because they never read this *Veterinarian*, or *Veterinary Journal*, or *Veterinary Record*? Perhaps they have been up in a balloon, or they may be of the type of Rip Van Winkle! The officers, namely, Mr. Peter Taylor, President, Mr. Sam Loche, Secretary, Mr. G. Morgan, Ex-secretary, and myself, Hon. Treasurer, with the members of council, have no self-interest to serve; no cost is incurred to the Society for their services, although sometimes they travel hundreds of miles to attend the meetings, or give evidence in court, and the loss of time, trouble, and expense, is accounted nought if

only they can assist any member, his widow, or his orphans who are in trouble. I would say here, more in sorrow than in anger, that although every sensible man knows it is his duty, especially if they have a wife and family, to make due preparation in case of accident, or sudden death, few do this while in health and strength, viz., put themselves in a safe position, or their widows and orphans in the care of those who will care for them. In our experience, it is most painful to think of the many applications made for help by those who being proceeded against, or who are in need of help, but who have failed to become members, and are thus ineligible to receive help from our funds. It would appear we, the officers, have given great offence for doing all the work of the Society, but in our case we hear that still, small voice whisper, "Well done, thou good and faithful servant." This is our reward.

"It is the mind that maketh good or ill,
That maketh wretch or happy, rich or poor.
For some that hath abundance at his will
Hath not enough, but wants in greater store;
And other that hath little asks no more,
But in that little is both rich and wise."

We are satisfied that "nothing succeeds like success." We have now between £3,000 and £4,000 husbanded and safely invested in charge of legally appointed trustees, the result of quiet persistent attention, and carefulness. This Benevolent Fund cannot under any conceivable circumstances be used for defence purposes. We had 15 new members last year, and 15 new members the year before, and 11 new members this year.—T. GREAVES.

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## Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from Professor O. C. Bradley, Edinburgh; T. Greaves, Manchester; Messrs. Vinton and Co., London; H. D. Chorlton, Manchester; H. J. Dawes, West Bromwich; F. T. Finney, Newcastle-on-Tyne; Messrs. Isbister, Murray and Co., New York; F. C. Mahon, London; M. C. Leyssandier, Paris; Veterinary-Captain Mills, Madras; A. W. Hill, London; Veterinary-Major Matthews, A.V.D., Dublin; P. Moir, Edinburgh.

BOOKS AND PAMPHLETS: Procès-Verbal de l'Academie Royale de Médecine de Belgique; Bulletin et Mémoires de la Société Centrale de Médecine Vétérinaire; Light Horses, Breeds and Management; *J. Wrightson*, Sheep: Breeds and Management; *C. Cadeac*, Sémiologie Diagnostic et Traitement des Maladies des Animaux Domestiques; *J. B. A. and G. Gresswell*, The Bovine Prescriber; Bulletin des Séances de la Société Nationale d'Agriculture; *W. S. Gottheil*, A Manual of General Histology; *M. Clement Leyssandier*, Etude Comparee sur la Tétanos; Bulletin de la Société Royale Protectrice des Animaux (Belgium); The Register of Veterinary Surgeons; Bulletin of the Johns Hopkins Hospital.

JOURNALS, ETC.: *Presse Vétérinaire; Echo Vétérinaire; American Veterinary Review; Journal de Médecine Vétérinaire et de Zootechny; Revue Vétérinaire; Tijdschrift voor Veeartsenijkunde en Veeteelt; Recueil de Médecine Vétérinaire; Veterinarian; Lancet; Clinica Veterinaria; Journal of the Royal United Service Institution; Freie Bühne; British Medical Journal; Baily's Magazine; Annales de Médecine Vétérinaire; Edinburgh Medical Journal; Journal of Comparative Medicine and Veterinary Archives; Practitioner; Thierarzt; Modern Medicine and the Bacteriological World; Mark Lane Express; Live Stock Journal; Wochenschrift für Thierheilkunde.*

NEWSPAPERS: *North Devon Herald; Baltimore American; Irish Daily Independent; Glasgow Evening Citizen; Times of India; Irish Times.*